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REVIEW OF HISTORICAL INFORMATION AND ENVIRONMENTAL RECORDS FOR THE BAXTER, QUENDALL AND BARBEE MILLS PROPERTIES

Not sent to agency

Prepared for:

JAG DEVELOPMENT CORP.
Bellevue, Washington

Prepared by:

REMEDIATION TECHNOLOGIES, INC. Seattle, Washington

RETEC Project No. 3-2438-110

JULY 1996



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TABLE OF CONTENTS

SEC	CTION	<u>PAGE</u>
1.0	EARLY	HISTORY OF THE PROJECT AREA 1-1
2.0	HISTOR	Y OF THE BARBEE MILLS PROPERTY 2-1
	2.1	Early Property History
	2.2	Development of Barbee Mills
	2.3	Summary of Environmental Activities
3.0	HISTOR	Y OF THE QUENDALL TERMINALS PROPERTY
	3.1	Early Parcel History
		Republic Creosoting and Reilly Tar & Chemical 3-1
		Observations of Ward Roberts
		Permits and Regulatory Observations
		Termination of Reilly Tar Operations
	3.2	Development of Quendall Terminals
		Property Purchase by Quendall Terminals
		Site Conditions During the 1970s
		Recent Land Use
	3.3	Summary of Environmental Activities
		Early Investigations
		Consent Decree and Agreed Order Activities
		Remediation Plans
4.0	HISTOR	Y OF THE BAXTER PROPERTY 4-1
	4.1	Early Parcel History
	4.2	Development of Baxter Wood Treating Operations
		Waste Discharges and Waste Management
		Termination of Wood Treating Operations
	4.3	Summary of Environmental Activities
		Early Investigations
		Consent Decree Activities (1988 to 1996)
		North Parcel Demarcation
		Remediation Plans and Waste Designation Issues 4-14
		Sediment Sampling
5.0	SUMMA	ARY OF DOCUMENTS REVIEWED BY RETEC 6-1
		LIST OF TABLES
TAP	BLE	PAGE
Tabl	e 5-1	Summary of Information Reviewed by RETEC

1.0 EARLY HISTORY OF THE PROJECT AREA

In 1873, all of the subject parcels were originally obtained from the U.S. government by Jeremiah Sullivan.

In 1875 the subject parcels were purchased from Mr. Sullivan by James M. Colman. This is the same J. M. Colman who features prominently in the early histories of Seattle. Colman purchased lands in between Renton and Newcastle in order to develop a narrow gauge railroad for the transportation of coal from the east side mines to the Seattle waterfront for export to San Francisco. The rail line was constructed between 1876 and 1878. In 1879 Colman sold the railroad to Thomas Oakes who renamed it the Columbia & Puget Sound. The 1895 USGS map described below shows the location of the railroad.

There were sketchy reports in the CH2M Hill planning documents suggesting that coal may have been shipped by rail to the waterfront properties and transferred to ship or barge. However, the historic sources reviewed by RETEC all refute these reports. Prior to the construction of Colman's railroad, the coal from Newcastle was delivered overland to Newcastle landing (located 1-1/2 miles north of the subject properties) and from there shipped by water across Lake Washington. After 1878, all coal shipments were made by rail which was substantially more economical than barge shipments to Seattle. The 1895 USGS map clearly shows a finished roadway between the Coal Creek and Newcastle mines and Newcastle landing north of the subject properties. There is also a roadway to the subject parcels, connecting with the former Colman dock at the southern end of the current Barbee Mills property, but that road is shown on the map to be less developed than the Newcastle road. Based on the lack of supporting information, RETEC concludes that coal shipments are unlikely to have been routed through the subject properties, and that the references in the CH2M Hill documents are incorrect.

In 1902 the timber on the subject parcels was sold. A right-of-way was deeded in 1903 to the Northern Pacific. The Northern Pacific rail line later became the Burlington Northern tracks which currently border the subject parcels.

The four subject properties remained within the Colman family through at least 1908. The ownership of the subject parcels then began to diverge. Peter Reilly took title to most of the waterfront parcels in March of 1916.

The pre-settlement shoreline of Lake Washington was variable due to seasonal changes in inflow/outflow, but tended to be rising due to gradual sedimentation of the outflow (Black River). Several lines of evidence confirm the rising lake levels over time including the presence of stumps and shoreline features at depths below the 1916 and present water lines.

Between July and October of 1916, the Army Corps of Engineers completed the Lake Washington Ship canal, which resulted in a lowering of Lake Washington by approximately 8 feet (USGS OFR 81-1182). This dramatically increased the land area of the waterfront parcels, by exposing land which was formerly submerged portions of the May Creek Delta. Department of Natural Resources maps compiled in 1914 and 1920 from DNR and Army Corps surveys clearly show the shorelines before and after the lowering. The pre-1916 features shown on the DNR and Army Corps maps are consistent with the 1895 USGS map.

An article in the *Town Crier* from April 14, 1917 discusses the findings of amateur archaeologists at the newly-exposed portions of the May Creek delta.

"...Follow this point clear out to the present water level which you will find covered with stumps to the waters edge, remnants of some kind of a forest growth. These are worn smooth to the present level of the ground, but the bowls of every decayed tree are supported by roots in place, spreading downward into the slimy soil of what was, only a few short months ago, the bottom of the lake and at some still remoter period, dry land covered with trees...you will see little piles of rock here and there along an ancient beach line...here lie the remnants of campfires..."

The observations support the conclusions of the USGS and others that the former lake level was rising prior to 1916, gradually flooding shoreline lands, and that during the 1800s the majority of the waterfront properties were submerged.

Between 1920 and 1936, the location of May Creek was moved southward from its original location. As shown in the 1895 USGS and 1914 DNR maps, the original creek bed was located in the middle of the current Quendall Terminals property. By 1936, this original channel had been partially filled, and the creek rerouted to a location roughly at the midpoint of the current Barbee Mills property. By 1946, the creek had once again been rerouted further to the south. A final southerly adjustment between 1946 and 1956 placed the creek in its current location.

2.0 HISTORY OF THE BARBEE MILLS PROPERTY

The history of the Barbee Mills property was compiled using the information listed in Section 6, as well as the comments of Robert Cugini. The property has not been subjected to the intense environmental scrutiny of the Quendall Terminal and Baxter properties, though some information reviews were compiled as part of the Port Quendall EIS process.

2.1 Early Property History

The Colman family and the Lake Washington Mill company both held title to portions of the Barbee Mills property during the 1920s. A Department of Natural Resources map from 1920 shows a long dock extending west from the rail line to Lake Washington roughly in the southern third of the current property. At that time, May Creek was located northward, within the current Quendall Terminals property. The dock is labeled the "May Creek Lumber Company Rollway & Logging Railway."

A Sanborn map from 1927 shows the layout of the Lake Washington Mill Company building. It is shown as a single mill building located on pilings on the shore of the lake. Additional buildings on site included a saw dust bin, wood bunker, and an office. The location is roughly one third of the way between the May Creek Lumber Co. rollway and the southern end of the current Barbee Mills property.

Based on an aerial photograph from 1936, the Mill had been removed no structures were present on the property. By this time, May Creek had been rerouted and cut westward across the center of the Barbee Mills property.

2.2 Development of Barbee Mills

Based on the title search results, the current Barbee Mills property was deeded to Barbee Marine Yards in May of 1943. The following statements regarding Barbee Mills were made in the Port Quendall draft EIS 1981:

"...The shoreline of 1936 was filled and dredged during World War II when docks were built to facilitate shipping lumber for the construction of wooden landing craft."

An article from the Seattle Times dated 1943 describes the creation of the Barbee shipyard. The article describes that the shipyard was established to construct wooden barges, tugs and other vessels for use during World War II. Photographs show the plant managers, E.P. Donnelly and E.D. White, as well as the progress of construction of the wooden shipyard building and wharf. The following are excerpts from the article which describe the shipyard and its business plans:

"The new plant includes a store-room 80 by 150 feet, a joiner room 60 by 120 feet, an office building and a track for a 100-ton Colby crane...The Barbee Company is building a wharf at the new plant 600 feet long and 450 feet wide, where there is deep water and the largest ships could berth."

"...the largest shipbuilding plant for the construction of wooden vessels on the Pacific Coast is taking form on a 32-acre tract. Buildings being erected will be supplemented by Barbee Plant No. 2, which is being moved on scows five miles from Bryn Mawr...it will cut lumber for the shipyard plant."

A photograph (circa WWII) hanging in the office of Robert Cugini clearly shows the entrance to an open-front wood building on the shoreline of Lake Washington. The building is consistent with shipyard activity, having two large ports opening to Lake Washington, apparently for launching or drydocking boats. Robert Cugini indicated that most company records from that period were destroyed in the fire of 1957, and he could not document what types of shipyard activities occurred on the site in the 1940s.

An aerial photograph from 1946 showed approximately 60 boats moored on the lake in front of this building. To the east of this building was a second building and a truck yard. The trucks appeared to be semis with long (approximately 40 ft.) open-topped trailers like the type typically used to haul scrap metal. Approximately 60 of these trucks were present in the yard. It is possible that the shipyard was used during 1946 to scrap WWII surplus boats. This was a common activity at shipyards around the Puget Sound area following the war.

The 1946 photograph showed that the southwestern portion of the Barbee property was used as a lumber mill, as evidenced by log rafting on the water and stacks of cut lumber on shore.

The mill in the photograph appeared very similar to the present mill in size, shape and location. A deed from June of 1945 recorded the transfer of property from Barbee Marine Yards to Barbee Mill Co.

The 1946 aerial photograph also showed another rerouting of May Creek to just north of its present location. In the photograph there was also evidence (many piles of soil were present between the lumber storage area and the shorelines of the lake and creek) of fill activity in the southwest corner of the Barbee property.

A 1956 aerial photograph shows the same buildings as in 1946, but a much greater amount of stacked lumber was present. By this time a rail spur had been added, and May Creek had been routed to approximately its 1996 location. The shoreline has been moved out into the lake by fill activity consistent with the soil piles shown in the 1946 photograph. Log booming activity was much greater at this time than previously, and no shipyard activity or truck yard activity remained.

In 1957 a fire was started accidentally by the campfire of two children fishing along May Creek. The fire almost completely destroyed the mill. The fire was described to RETEC by Robert Cugini, and documented in a Seattle Times article framed on the wall of the mill office. The fire was also referred to in reports of interviews conducted by Ecology with employees at Reilly Tar (Ward Roberts and others). The fire destroyed all buildings except the water tower and the building bordering the Quendall property.

Following the fire, the mill was rebuilt, with gradual construction of the buildings present on the site in 1996. This rebuilding and expansion was documented in aerial photographs from 1968 and 1974, as well as in the records of the Washington Archives. By 1974, the paving of areas north of May Creek was completed.

METRO conducted geotechnical and water quality evaluations in the May Creek area during the 1960's and 1970's. These projects were conducted as part of the construction of the Eastside and May Creek Interceptors. A METRO report indicated that the creek deposits approximately 3,000 cubic yards of sediment each year at its mouth. Those documents state that the City of Renton dredged the mouth of May Creek in 1972. Sediments from the creek were repeatedly used as fill at the mill property throughout its history according to Robert Cugini. The filling of the southern mill yard between 1968 and 1974 (visible in aerial photographs) could have been performed in part with the sediments dredged by the City of Renton.

In 1984, administration of the Barbee Mills lease for aquatic lands fronting the property (between the inner and outer harbor lines) was transferred to the Department of Natural Resources (DNR). Formerly the lease had been managed by the Port of Seattle. The lease with DNR runs from December of 1985 to December of the year 2003. Correspondence between Barbee Mills and DNR documents two revaluations of the lease agreement. These included disputes over the definition of "log storage" and "log booming" and the lease rates applicable to these activities.

Recent activities at the mill have included machinery updates and periodic dredging of the May Creek channel to avoid flooding. The mill produces standard and metric-cut lumber for local and international markets. Some of the wood is spray-treated with a copper-based mildew-cide and a wax to prevent "sap stain" prior to sale. Other forms of sap-stain treatment may have been used in the past, possibly including the use of Pentachlorophenol treatments.

2.3 Summary of Environmental Activities

The attempts at development of the Port Quendall area in the 1970's and 1980's included the Barbee Mill property. As part of these redevelopment efforts, various geotechnical and environmental investigations were conducted. A 1978 geotechnical study by CH2M Hill includes a map summarizing previous studies. This map included references to the following invasive work at Barbee Mills:

- Test pits adjacent to the dry kiln building (Dames & Moore, 1972)
- Test pits adjacent to the Lake Washington shoreline along the rail spur (CH2M Hill, 1974)
- Soil borings along the Lake Washington shoreline (CH2M Hill, 1974)
- Off-shore "probings" of Lake Washington sediments (CH2M Hill, 1974)
- Geotechnical borings throughout the site (CH2M Hill, 1978)

METRO activities along May Creek resulted in early investigation of sediment and stormwater quality. In January of 1976, METRO conducted an evaluation of the sediments at the mouth of the creek. The work included a SCUBA survey and texture analysis of sediment

samples. The report noted that approximately 3,000 cyd of sediment is deposited annually in the lower reach of May Creek. Additional observations are listed below:

"An extensive amount of fine to medium sand, gravel and small pebbles is present in the lower reach of the Creek, with finer sand in the main channel and gravel in the bar areas...At the creek's immediate confluence with the lake, the bottom is composed of both fine sand in the main channel and fine to medium sand near the creek bank...A sandy sill has been formed at this point...this sill gradually slopes into a broad delta. At a depth of about ten feet, the bottom substrate gradually changes to a silty sand, organic composition. Proceeding lakeward, the bottom continues to gently slope to approximately 30 feet in depth and is composed of sandy silt and organic material. The delta area is extensive and uniform, extending at least to the lakeward dolphins and under the log booms."

In 1978 and 1979, METRO conducted a stormwater analysis of four storm events on May Creek. The report included both hydraulic analysis and chemical analytical data. Chemical analyses included heavy metals, nutrients and biochemical oxygen demand. The report included the following conclusions regarding the suspended solids carried by the creek:

"...the dominant factor governing solids washoff by storm drainage within the May Creek basin at the present time is not land development. Rather it is the erosion of naturally unstable substrate from a steep canyon in the lower basin during conditions of high velocity runoff. The area noted contributes a mean of >60% of the solids washed from the May Creek drainage basin during and following moderate to heavy rainstorms. It is comprised of 77% open space..."

Robert Cugini indicated that much of the subgrade beneath the southern portion of Barbee Mills consists of wood waste and May Creek sediments. At the mouth of the creek, Robert indicated that for most of the last 40 years the sediments have had to be dredged every 1 to 3 years to prevent flooding. The DNR files included a letter dated March 26, 1975 from Neil Twelker & Associates to the Corps of Engineers requesting authorization for dredging to prevent flooding. This letter references the earlier 1972 flooding and subsequent dredging of the creek by the City of Renton.

DNR records included copies of a 1990 application from Barbee Mills for maintenance dredging. The purpose of the application was to obtain authorization to remove 2,200 cyd of

sediment from the mouth of May Creek, as well as to remove 200 cyd per year of bark and debris from the mill area to "provide depth for log movement." A letter from the Department of Ecology dated September 11, 1989, states that the department "approved similar work in 1982 under Corps permit OYB-1-8021." This statement confirms Robert Cugini's statements that the creek has been dredged repeatedly by the mill over the past 40 years. The 1990 dredging application included analytical data for the May Creek sediments. A photograph in a later (1993) application for dredging shows erosion caused by a "severe storm event" on January 9, 1990, confirming that stabilization of the banks of May Creek is a significant concern at the Barbee Mills property.

The most recent application for dredging permits (1993-94) was complicated by a controversy over alleged illegal filling of the May Creek and Lake Washington shoreline by Barbee Mills. Robert Cugini had applied for permits to dredge the creek and to use the material as fill to create residential land to the south of the creek. This request was denied. In addition, the City of Renton and the Department of Ecology reviewed aerial photographs and lake bathymetry and concluded that Barbee Mills had been responsible for unauthorized filling of the lake and "degradation of shallow-water fish habitat." The controversy was documented in several Seattle Times articles and in documents included in the DNR files for the Barbee leasehold.

The Barbee fill controversy resulted in the filing of an Agreed Order between Barbee Mills and the Department of Ecology. Section II, paragraph 8 of the Agreed Order included the following statements:

"On July 13, 1993, Barbee submitted its Application For Relief From Penalty. The Application...offered to participate in May Creek bank stabilization, establishment of a fixed and permanent shoreline, provide habitat enhancement for May Creek and Lake Washington while denying culpability under the Enforcement Order. It also pointed out Barbee history in managing the accumulating accretions which continue to choke the mouth of May Creek. Subsequently, representatives from Barbee, Renton, Ecology and the Department of Fisheries of the State of Washington met on several occasions to plan an appropriate plan of remediation including an enhancement program benefiting fisheries."

In response to the Agreed Order, Barbee and Lloyd Associates prepared remediation plans detailing the work to be performed. These plans covered the following items specified in the Agreed Order:

- removal of the dredge spoil mounds existing as of 1993
- establishment of a new bermed dredge spoil storage area located upland from the 1985 shoreline
- reconfiguration of the shoreline to the 1985 ordinary high water line
- revision of dewatering procedures for future dredging projects
- revegetation of the lake and creek shorelines to provide stabilization and fisheries enhancement.

Following the signing of the Agreed Order, the permits for maintenance dredging were approved. They were signed in March of 1995. The permit included a fisheries closure between April 15 and June 15. The time limit for completing the work authorized in the permit ends on March 27, 1995. The permit and water quality certification included additional requirements for the dredging, dewatering and spoils disposal procedures to be used.

A letter between the DNR and Barbee Mills dated April 28, 1995 includes discussion of DNR lease requirements. The mill had requested through Mr. Hanken acknowledgment of the Mill's authority to proceed with maintenance dredging of bark & debris in the DNR lease area. The DNR letter included the following response:

"As outlined in the lease, Subsection 5.2(2) states, 'The Lessee shall not allow debris or refuse to accumulate on the leased premises.' In addition, Subsection 5.2(3) states, 'The Lessee may, following thirty days' notice to the lessor, dredge the leased area as needed to maintain the water depths normal to the property."

Environmental documentation exists in Ecology files only from the period of 1988 and later. The records describe waste management practices, stormwater controls and dredge permitting. Several inspections of the site have been conducted by Ecology since 1988.

Preliminary stormwater sampling was conducted by Lloyd & Associates for Barbee Mills in 1991. Testing was performed for petroleum and copper. One sample was analyzed for pentachlorophenol.

Lloyd & Associates prepared a Waste Minimization plan for Barbee Mills in January of 1992. That plan details the wastes (both solid and hazardous, also wastewaters and stormwaters) generated by the mill. The plan notes the removal of underground storage tanks:

"Barbee Mill Company, previous to removal of underground storage tanks, maintained substantial quantities of petroleum products (diesel, gasoline) on-site for vehicle/equipment refueling...Removal of the UST's and conversion of facility equipment to propane operation has substantially reduced the risks of spills or other incidental losses..."

The document further describes improvements being implemented at that time in stormwater and wastewater handling and the minimization of oils and solvent wastes. A solvent still was formerly located on site but had been eliminated as of 1992. The document describes the mildewcide application area and the ongoing efforts to identify environmentally friendly products to serve this purpose.

Environmental complaints were submitted anonymously in June and November of 1992 to Ecology. The complaint record in Ecology files for November included the following written notes:

"...the mill was cleaning the press area where they bond and spray chemicals on the loads. They are washing area down with a wax and chemical to the soil and storm drain which caller understands goes directly to Lake Washington."

Later inspections by Ecology (in response to the complaints) are consistent with the mill's wastewater improvements described in the Waste Minimization plan. The files document the filing for METRO discharge permits and installation of oil/water separators in the lines discharging to METRO. Oil/water separators and sediment traps were also installed in one stormwater line leading to Lake Washington.

The Barbee Mills property is not currently in Ecology's database of contaminated sites. Neither are they listed in the most recent version of the state's database for underground storage tanks and leaking underground storage tanks. However, no closure reports were present in Ecology's files for the removal of the petroleum storage tanks described in the Waste Minimization Plan.

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3.0 HISTORY OF THE QUENDALL TERMINALS PROPERTY

The history of the Quendall Terminals property has been extensively documented due to the environmental and development activities occurring on the property since 1970. RETEC reviewed existing documentation as well as conducted independent historical reviews.

3.1 Early Parcel History

Original industrial operations at the Quendall property were initiated in 1917 with the establishment of Republic Creosoting by Peter Reilly. Various files reviewed by RETEC indicated a range of years from 1916 to 1918. The date of 1917 is the most consistent and probable year for initiation of Tar refining operations. The 1917 date is one year after the lowering of the Lake elevation, and is the same year that manufactured gas plant operations were moved from downtown Seattle (the present site of Union Station at the intersection of 4th Avenue and King Street) to Lake Union (Gas Works Park). According to the accounts of Ward Roberts, an employee at the refinery, the tars generated by the Lake Union gas plant were shipped by barge to the Quendall site and refined to produce creosote and other refined tar products. The plant also received tars from Bellingham, Tacoma and elsewhere.

Republic Creosoting and Reilly Tar & Chemical

The DNR maps compiled in 1920 clearly show the original Republic Creosoting refinery and storage tanks. The still house was located to the west of the brick office building which still exists at the site. Four above-ground storage tanks were located to the southwest of the office. The 1920 maps show a pipeline connecting the short dock to the still house, and another line connecting the still house and the storage tanks. The original bed of May Creek was present immediately to the south (approximately 100 feet) of the four storage tanks.

By 1936 (first available aerial photograph), the operations of Republic Creosoting had expanded. The photograph shows that the bed of May Creek had been rerouted to the south by this time. Additional storage tanks had been constructed, including the two largest tanks (reportedly 2-million gallons each in volume). The tanks of the north tank farm had not been constructed, nor had berms been constructed around the large tanks. The still house and adjacent

buildings had been expanded, a sump was installed to the northwest, and the T-pier was constructed for off-loading of tankers.

Records at the Washington Archives identify the construction dates for the largest tanks, the T-dock and several of the buildings. The pipeline from the T-dock to the shore is shown in these records as a 6-inch diameter pipe.

Observations of Ward Roberts

Interviews with Ward Roberts, a manager at the property from the 1950's through the Quendall operations of the 1970's indicated that the T-pier was used for offloading tankers, while the short pier was used for offloading barges. Both were connected by pipeline to the still house and storage tanks.

"Mr. Roberts indicated that the plant refined tars in stills producing creosote and distillates. Different tars, including oil-gas tar, water gas tar and coke oven tar were used as raw material in the refining process. Tar distillates were further refined through fractioning columns to generate crude naphthalenes, xylenes, benzene, toluene mix and other organic products. During Mr. Robert's time with Reilly and Quendall, he estimated the plant used approximately 500,000 gallons of oil-gas tar from Gas Works Park each month as well as receiving tar from other sources."

"Mr. Roberts discussed basic information on the groundwater and geology of the site. Workers at the plant lived east of the facility and relied on 5 or 6 wells for potable water. One by one, each of the wells became contaminated with creosote. He was not sure of the exact depth of these wells (although he stated they were shallow), but mentioned that the plant's drinking water well was artesian. Mr. Roberts sounded this well at 180 feet...He also mentioned that the pilings for the J.H. Baxter boiler house were driven through 18 feet of peat to hard bottom at 25 feet. Reilly's boiler house was several hundred feet to the south of this."

"Mr. Roberts could not remember any leaks or spillages from the tanks, although once a 25,000 gallon pitch tank blew up and everything in it solidified once it cooled. The pipes were then placed above-ground because of problems with buried pipes in the still house leaking."

Mr. Roberts indicated that to his knowledge, the property to the south of May Creek was not used by the facility for waste disposal because no bridge was available. Potential sources of soil and ground water contamination listed by Mr. Roberts included the following:

- the still house
- the underground pipes in the still house
- disposal of waste pitches and "Saturday coke" by running them out onto the ground
- spills at the end of the docks, including a release in which an estimated 30,000-40,000 gallons was lost into the lake off the end of the T-pier circa 1937.
- the flush box and sanitary sewer outfall
- pitch bays (40 feet wide by 150 feet long & 4 feet deep) constructed with concrete bottoms and wooden sides and used for cooling of pitches
- the old bed of May Creek where dumping of tank cleaning residues occurred
- former sumps which received effluent from cooling lines sometimes contaminated with creosotes and tars
- foundry slag from the Renton PACCAR facility deposited as fill at the southwestern corner of the property

In a written history of Reilly Tar Refinery at Quendall prepared by Ward Roberts circa 1981, Mr. Roberts related second-hand a story of a large spill of coal tar which occurred at the end of the T-dock. The story is recounted as follows:

"Early tanker operations were sometimes hectic. On one occasion a Japanese tanker was to discharge creosote at night. There was a severe language problem between the tanker crew and the plant personnel. They finally got hooked up and were given permission to start pumping. It being winter, and the weather miserable, the plant man came up to the boiler room to get warm. After an hour or so he went out to check the receiving tank, and discovered that there was nothing coming into it. Back out on the pipe trestle, he asked the tanker crew when they were going to start pumping. Again, with much language difficulty, they made it plain that they had been pumping for over an hour. The plant man in turn finally made it clear that nothing was coming into the plant. The tanker crew had opened the wrong valve and pumped over 30,000 gallons of creosote into Lake Washington."

The reported spillage is consistent with the 6-inch line size and pumping rates achievable at the T-dock (rate up to 40,000 gallons per hour through the 6-inch line). However, Mr. Roberts could not verify the date or accuracy of this story. In the preface to the written history, Mr. Roberts states that "from about 1930 to 1950 most of [the history] is what I was told by Lou Tollefson." RETEC reviewed many second-hand accounts of this spill during the file review, each indicating 30,000 to 40,000 gallons spilled some time in the 1930's or 1940's. It is likely that these reports were all derived from Mr. Roberts' second-hand accounts.

In a map prepared by Ward Roberts in 1981, he identifies a second sump located in between the northern tank farm and the still house. Notes accompanying the map indicate that "this marks a sump abandoned sometime prior to 1950." In a 1989 interview with Ecology, Mr. Roberts noted that experimental wood treating with chlorinated compounds was conducted in an area adjacent and to the west of this sump. The referenced area was later the site of the northern tank farm. Aerial photographs reviewed by RETEC show that a rectangular building was located in that location during the 1930's and 1940's, but was removed by 1956. Mr. Roberts did not specify the dates of the experimental wood treating. The interview notes include the following statement:

"Chlorinated hydrocarbons might also be found on the site, although in small volume, from the residues of an experimental wood-treating area where they tried using chlorinated liquid tar distillates (area #5 on the overlay)."

Permits and Regulatory Observations

An inspection report from 1946 by the Pollution Control Commission indicated that operations at the Republic Creosote company facility had resulted in spills near the old creek bed and at the end of the docks. The following quotations were taken from that report:

"a tank car was noticed on a trestle directly above a creek bed, tributary to Lake Washington, and from all appearances many spills have occurred here in the past, especially during hose connections from tank car to storage tanks. Undoubtedly such oil spills have found their way into the Lake."

"An inspection was then made at the end of the dock where boats unload fuel oil for the plant. The dock runs approximately 150 feet from shore and on it three to six inch pipes were visible...The entire end of this dock was saturated with oil..."

Lease records for Quendall indicate that from 1946 to 1951, the DNR aquatic lands in front of the Quendall property were subleased to Kennydale Shipyards. An aerial photograph from this period shows the storage of approximately 50 barges in this area. Log rafting operations were conducted from 1936 through the present in this same area.

The property to the north of Quendall (presently the Baxter property) began operation as a wood treating site in 1955. This was confirmed by a 1956 aerial photograph which showed the Baxter operations in progress simultaneously with the tar refinery operations on the Quendall property. At that time, the southern portion of the Baxter facility was owned by Reilly Tar and Chemical. A deed in 1957 transferred the ownership of that parcel to Baxter. A map of existing conditions at the Quendall property drawn by J. Carson Bowler architects in February of 1972 shows a pipe line connecting the Reilly Tar tank farm with the storage tanks located on the Baxter site to the north. Baxter waste discharge permit documents from 1970 and 1971 indicate that creosote was purchased from Reilly Tar & Chemical, suggesting that this pipeline was used to transfer creosote or oils to the Baxter property for use in treating operations there.

Waste discharge permits from the Pollution Control Commission for the Republic Creosoteing Company and later for Reilly Tar and Chemical reference discharges of cooling and contaminated waters to Lake Washington. The permitted volumes were 50,000 gallons per day (gpd) in 1956, declining to 28,000 gpd in 1961 and to 10,000 gpd in 1966. The permits state that oils and sludges are not to be discharged to state waters, but rather "must be disposed of on land". Interviews with Ward Roberts in 1983 and 1989 include descriptions of the water discharges from the plant:

- "...The condensers from the stills produced hot creosote vapors and steam which discharged into collecting pans and were pumped to storage. Leaks sometimes occurred in the condensers, and distillates would enter the cooling water. Cooling water discharged through a sewer into Lake Washington..."
- "...Mr. Roberts mentioned old sumps, approximately three feet deep, which received effluent from cooling water in condensers (any leaks in the condensers would contaminate the cooling water)..."

Termination of Reilly Tar Operations

Operations of the tar refinery continued through 1969. The name of the refinery was changed to Reilly Tar & Chemical in 1956. Tar refining operations declined after 1957 with the

eventual closing of the gas works facility on Lake Union. Interviews with Ward Roberts and other refinery employees indicate that the refinery used tar from various other sources through 1969 when the plant was finally shut down for economic reasons. An inspection report by the Water Pollution Control Commission in February of 1970 contained the following notations:

"Mr. Roberts the plant manager informed me on my arrival to Reilly Tar & Chemical that they were going out of business and they were in the process of shipping and selling all the products they had on hand...Mr. Roberts said that they should be shut down within one year if not sooner...They have two lagoons, one of which is just a ravine, surrounded by trees, the other does have the resemblance of a lagoon which discharges through the tules to Lake Washington. The entire plant site is covered with varying quantities and qualities of coal-tar. This will cause a disposal problem, when the site is vacated. Any drainage improvement of filling over this property is sure to cause a water pollution problem in the lake..."

Aerial photographs from 1968 and 1974 show what appears to be storage of creosote-treated poles on Quendall lands south of the Puget Sound Power and Light easement. The area includes lands to the north of the former sump and still house building complex. The poles appear quite dark in the photograph suggesting they may be have been treated with creosote. The activity appeared to be related to Baxter operations to the north, based on the dirt roadway patterns present on the site. The storage of treated wood in this area could not be confirmed by written historical documentation or correspondence reviewed by RETEC. Light-colored poles were also stored in this area. These could represent PCP-treated wood, but this is not possible to verify from the historical photographs.

3.2 Development of Quendall Terminals

A PLP search conducted by the Department of Ecology indicated that in 1970 (prior to the property sale) Reilly leased the site to J.H. Baxter who in turn subleased several of the storage tanks to Boeing and other parties for storage of diesel, Bunker C and petroleum products.

Property Purchase by Quendall Terminals

Department of Ecology files included Ecology correspondence in early 1971 describing discussions between Ecology and Don Norman. An April 21 letter from that year included the following discussion:

"Several weeks ago we were contacted by a Mr. Don Norman...he is at this time working to put in a large development...this property would include the former Reilly Tar property, J.H. Baxter property, Barbee Mill property. investigations, going over the property of Reilly Tar, he found that approximately five acres of soil is thoroughly saturated with coal tar residues at varying depths and surface water is running across these deposits and going out into Lake Washington. We have not sampled these and from reading the permits, talking with people in this office, apparently no one had ever observed the real condition Mr. Norman, due to the lease arrangement or option of this property. arrangement, had Reilly Tar leave their storage tanks in tact on the site. Apparently they have some three to six million gallons of storage capacity available and we have recently found out that these tanks were used last winter for storing Bunker C oil for Boeing...Mr. Norman was concerned about the pollution of the area and he did have dikes placed around the tanks, prior to starting these operations. Previously these tanks had no protection at all around them and oil spills and so forth thoroughly saturated the ground in the entire area."

"Mr. Norman is trying to put this package together for a big development and...has contacted just about every agency in the area concerning these problems and wants to know what our requirements will be if he develops the property...At this time I can't tell whether he wants us to go after Reilly Tar and force them to come back and clean up or whether he really is asking advise as to what to do and methods to proceed in developing the property...Mr. Norman has asked if he could come in and drive tight sheet piling along the shore to out about a ten foot depth along the front of most of this property some 1500 feet...Then he would want to fill behind this with an impervious layer..."

"I have seen horrible messes before but never seen anything like this. Stew and I waded through this thing about knee deep. It is just unbelievable that such a mess

could have been created in this area without being observed by someone from this office or having received complaints from the general public."

A later memorandum summarizes a June 2 (1971) meeting between Ecology and Mr. Norman and Jim Hanken regarding the proposed development. This memorandum included the following quotations:

"The meeting consisted of a discussion of the legal aspects involved with the attendant pollution problems at the Reilly Tar Company site and the liability for damages, cleanup activity and possible future penalties for violations of water quality standards resulting from activities or non-activity at the subject site...Mr. Norman's comments on the proposed development ...did not differ materially from the information provided at our earlier meeting...Mr. Norman pointed out that at the present time core sampling is being conducted at approximately 15 sites, both on the Reilly Tar shore property and in Lake Washington..."

"Chuck Lean [attorney for the Dept. of Ecology] stated that the Department of Ecology did not anticipate taking enforcement action against Reilly Tar for the existing pollution problem on the property. He expressed the feeling that any action undertaken to correct the pollution situation there would be so costly and technically difficult that Reilly Tar would not readily be encouraged to conduct the cleanup operation, and that the enforcement action against them would result in long, drawn-out legal problems and court action. Chuck also stated that the property holder would be liable at any time for suit action, as filed by the Department of Ecology, for continued violation of the water quality standards at the subject site. This suit action would certainly be an imminent possibility, if further degradation of the water quality were to occur as a result of proposed construction activity or other development of the site."

"Don Norman wanted to verify the position of the Department of Ecology as a governmental agency with respect to the continued investigation and possible development of this entire waterfront site. His feelings were that if the Department of Ecology were to continue to take a cooperative and open-minded attitude toward the investigation...then his client would continue negotiations for purchase of the property in the immediate future. As apparently all other governmental agencies contacted by Mr. Norman, such as the EPA, Bureau of Sport Fisheries,

Washington State Department of Game, Washington State Department of Fisheries and Department of Natural Resources had no objections to the project at the present time as it has been proposed, Mr. Norman now wanted the Department of Ecology to state whether it had any major objections to the project which would prevent its continuation at this time. If these possible objections can not be reconciled at the present time, then further investigation, study and investment of capital funds in the subject site would be stopped."

"Bob McCormick indicated that the Department of Ecology was primarily concerned with limiting the pollution situation and improving the water quality in the area. If the proposed project were to continue to be investigated and developed in the manner it had been so far, the Department of Ecology would have no major objection to the development. This response to the project, of course, would be very dependent on the development of engineering plans and designs for the proposed facility, and the actual and specific water front usage, fill/structure effect on the containment barriers and the attendant water quality."

In 1971 (June 15), the Reilly Tar property was sold to Quendall Terminals under a real estate contract. The contract included a "Supplemental Agreement" that referenced the soil investigations conducted by the purchaser and stated that "any action for abatement of the residue condition or for damages as a result thereof commenced after June 15, 1976, shall be the sole responsibility of the purchaser. The terms of the real estate contract called for \$500,000 up front and \$100,000 per year for five years. The terms of the contract were fulfilled in 1975 (July 16) when the property was finally deeded from Reilly Tar & Chemical to Quendall Terminals.

Site Conditions During the 1970s

Documents in Ecology files tracked the attempts by Quendall Terminals to develop a cleanup and development plan for the property. These files included an extensive series of response letters regarding the "Proposed Action" at Quendall Terminals. The proposed action included construction of oil/tar recovery ponds and water treatment lagoons constructed on aquatic lands in Lake Washington. A waste oil refinery was to be operated as part of the project for 10 years to help finance the project. The plans for waste oil refining were later discarded due to permitting problems. However, oil storage was performed during this time.

An inspection of the site by Ecology in March of 1972 included a discussion of berm construction and general site conditions:

"The road from the office bisects the property. This road has been built up from the surrounding earth to form a dike around the storage tanks. In construction of this diked road layers of tar were uncovered, which have begun flowing toward the lake's edge. Two small lagoons were formed when the earth was removed for the road. These lagoons will contain the oil from running into Lake Washington."

"Inside the storage tank yard the ground is saturated with oil and tar products; surface oil pools are present around a couple of the larger tanks. Mr. Norman mentioned that rainfall and ground water runoff are a serious problem. Rainfall within the storage tank yard brings oil to the surface and this coats the tanks and pump equipment...When Reilly Tar and Chemical Company was in operation...oil spills were allowed to drain towards the lake. The latter years the spills were channeled to a swamp on the north section of the property..."

"A tar belt from spills runs from the edge of the piers in Lake Washington to the railroad tracks...Tar products used to be pumped up from the storage yard to the railroad tracks for loading. An area north of the office has spills of heavier tar products, while the second area near the office was from lighter products.."

The PLP search performed by the Department of Ecology tracked land use at the site between 1970 and 1982, listing the following companies that were reported to have stored products at the facility:

- Boeing
- Lidcoa Company
- Superior Refinery
- Seattle Rendering (tallow only)
- QED Corporation
- United Drain Oil, METRO, King County, Fort Lewis
- Golden Penn Refineries
- Western States, Willamette Industries
- Turbo Energy Systems
- Northwest Services, Inland Transportation, Pacific Gamble Robinson

The PLP search document indicates that the large tanks from the north and south tank farms were dismantled and sent to a disposal facility in Idaho in 1983. The document then cites an interview with Robert Johnson of Quendall Terminals and describes filling of the site after this point:

"After the tanks were removed, Quendall Terminals placed approximately 3 feet of fill material comprised of sawdust and dirt over most of the site. This fill material was obtained from a METRO sewer project at Coal Creek."

Aerial photographs from 1974, 1985 and 1990 support the observations made in the PLP search report. Photographs from 1974 show the containment berms, tanks and the two ponds into which the berms drained. The still house building and nearby tanks and structures had been removed by this time and this area was used for log storage, along with areas to the south of the tank farm. Photographs from 1985 show only one pond remaining, and by 1990, both ponds had been filled in. A site survey was conducted by Baylis, Brand and Wagner in the mid-1970's and shows the site layout and elevations prior to tank removal and filling/grading.

Recent Land Use

The Quendall property has been used since 1983 for log storage, bark storage, and wood cutting. Additionally, storage of dredging and aquatic construction equipment has been performed on the aquatic lands adjacent to the property.

Prior to 1984, the aquatic lands in between the inner and outer harbor lines had been leased by Reilly Tar and then Quendall Terminals from the Port of Seattle. In 1984, administration of these lands was transferred to the Washington DNR. A lease was signed permitting log storage on these lands through October of 1996. In 1991 the DNR was contacted by the Department of Ecology regarding potential liability for sediment contamination. A DNR letter dated September 6, 1991 included the following response:

"DNR is of the opinion that the state of Washington should not be held a potentially liable party (PLP) under the Model Toxics control Act at the Quendall Terminal/Baxter site. Based on information that you have provided, it appears that state lands have become contaminated as the result of hazardous substances used in connection with a facility owned and operated on private lands. An initial review of our records indicates that DNR had no involvement with the state lands

adjacent to the site until 1985 when leases were granted for the purposes of log booming and/or storage...DNR wishes to be involved at the site by being kept informed of remediation activities and having an opportunity to comment on work plans and documents related to the investigation and cleanup of aquatic lands at the site...DNR may be able to use its proprietary authority to assist in cleanup of the site...The existing leases have limited language for dealing with hazardous substances and it may be difficult to force the lessees into a cleanup action without pursuing litigation...DNR's future plans at the site depend on the Memorandum of Understanding (MOU) currently being negotiated with Ecology through Keith Phillips. The MOU will outline the role DNR will play at Ecology lead cleanups and in what circumstances DNR should take the lead..."

3.3 Summary of Environmental Activities

As described above, environmental permits exist dating back to at least 1956 at the Quendall property. Various inspections were conducted as part of those permits.

The proposed development plans in the 1970's and 1980's focused significant attention on the site, and initiated additional permitting processes. The proposal to construct in-water lagoons for biological treatment of extracted groundwater involved requests for Department of Natural Resources and Army Corps authorizations. Additional permitting records exist from the environmental impact statements, waste management regulations, fire department inspections, and Shoreline Management Act processes.

Early Investigations

Investigations were conducted at the Quendall property in 1983 by Woodward Clyde Consultants (WCC) and by EPA. The WCC investigations included summaries of previous investigations (primarily geotechnical studies). WCC conducted soil borings and trenching to identify soil contamination, and installed monitoring wells to measure groundwater contamination. Significant tar deposits were detected visually, and PAH contamination was confirmed using analytical chemistry. The locations of the tar deposits corresponded roughly with the principal source areas identified by Ward Roberts and others during historical reviews. Groundwater contamination included the presence of product layers.

An EPA inspection in 1983 was focused on sediment contamination. The work included both visual observations made by a SCUBA survey as well as sediment sampling for chemistry. The divers noted the presence of aquatic plants, crayfish, trout, bass, sculpin, freshwater mussel shells and shrimp during their survey. They also noted a small (2-inch) "puddle" of reddish-brown hydrocarbon product on the sediments near the southern end of the T-dock pier head line. Hydrocarbon odors and deposits were detected in sediment cores, and these samples were later confirmed to have elevated PAH contamination by analytical chemistry. Chemical sampling was limited to the Quendall property area, plus some background samples collected north and west of the property.

In 1984, the City of Renton expressed concern that contamination from the Quendall property might impact plans to reactivate Renton Municipal Well Number 5 located over 1 mile southeast of the subject property. A report prepared by the City's consultents (Converse) concluded that the Quendall contamination did not present a risk to water quality in the well.

In 1984 the Port Quendall development area was proposed for inclusion on the Superfund or National Priority List for Superfund. The proposal referenced Renton Well No. 5. In May of 1986, the site was removed from the list of sites proposed for NPL listing.

Consent Decree and Agreed Order Activities

In 1988 the Department of Ecology and Quendall Terminals signed a Consent Decree for a remedial investigation at the Quendall site. WCC was hired to perform the work called for under the Consent Decree. WCC installed soil borings and trenches, and installed a series of groundwater monitoring wells. WCC noted extensive areas of coal tar contamination, including areas of free product. The trenches and boring logs confirmed the presence of extensive fill areas at most of the site, particularly in the old bed of May Creek. Groundwater wells confirmed the presence of free product in groundwater as well as dissolved contaminants in many areas of the site.

In 1991 and again in 1992, the Department of Ecology conducted sediment investigations at the Quendall and Baxter properties. The investigations focused on shallow sediments (0-2 cm deep) and detected significant PAH concentrations offshore from the Quendall property. The highest PAH concentrations were measured in the vicinity of the T-dock where a large spill of creosote is reported to have occurred in the 1930's or 1940's. Testing was performed also for PCP, PCBs and heavy metals, but these constituents were not detected at elevated concentrations

at Quendall. Significant PCP concentrations were, however, detected at some areas near the Baxter property. The Department of Ecology used some of the 1991 and 1992 data in their ongoing attempts to develop cleanup standards for freshwater sediments. To support this work the investigators performed bioassays and measurements of macroinvertebrate abundance.

In 1993, when the WCC work described under the 1988 Consent Decree was completed, Ecology and Quendall Terminals entered into an Agreed Order for an RI/FS at the site. The work to be performed under the Agreed Order was to include a supplemental remedial investigation, a risk assessment and a feasibility study. Hart Crowser was hired by Quendall Terminals to conduct this work and is currently serving in that capacity. No sediment studies were called for in the Agreed Order, and none have been conducted by Hart Crowser.

Remediation Plans

The Ecology files contain various documents filed by Quendall Terminals over the years to support redevelopment plans at the site. These include an initial development attempt between 1971 and 1976, as well as a later attempted redevelopment in 1980 to 1982. These documents include development and cleanup plans, and significant information (including photographs) documenting the environmental problems at the Quendall property. Responses from regulatory agencies are documented in the files reviewed by RETEC and generally focus on product seepage concerns and water quality impacts at the site.

Under the 1993 Agreed Order, Hart Crowser is responsible for completing a supplemental remedial investigation (RI), a feasibility study (FS) and a risk assessment. The RI report is scheduled to be submitted to Ecology after September of 1996. The FS will address potential cleanup options at the site. The FS document preparation is scheduled to begin in June of 1997, and be delivered to Ecology along with the risk assessment in October of that year. However, biotreatability testing of soil samples and activated carbon tests for extracted groundwater have already been performed as part of this work.

Hart Crowser did discuss a conceptual volume estimate of contaminated soils encompassing a large area of the site, with an estimated volume of 150,000 to 200,000 cyd. Previous remediation plans proposed as part of the Port Quendall development projects in the 1970's and 1980's called for product recovery and recycling, and containment of the majority of the soils and sediments. Based on RETEC's discussions with Hart Crowser, it appears likely that the FS will focus on containment remedies for soils and sediments.

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4.0 HISTORY OF THE BAXTER PROPERTY

4.1 Early Parcel History

As with the Barbee Mill and Quendall properties, most of the Baxter property was submerged prior to the opening of the Lake Washington Ship Canal in 1916. The one exception to this was a peninsula of land at the north end of the Baxter property. A shingle mill was located on this peninsula in roughly the location of the Misty Cove condominiums, immediately to the north of the current Baxter property line. The mill location is documented in 1914 and 1920 DNR maps of the area. The title search indicates that the mill later was owned by Sound Lumber Company and the Veneer and Box Company.

In 1918, the current Baxter property consisted of two separate parcels. The northern portion (roughly two thirds of the current area) was owned by a Mr. Falk. The southern portion was owned by Peter Reilly, owner of the current Quendall property from March of 1916. According to records at the Washington Archives, Mr. Falk constructed a wooden house for his personal residence on the northern portion of the Baxter property in 1918.

In 1938, Mr. Falk sold a portion of the Baxter property to Emil Gaupholm. Mr. Gaupholm constructed a residence on this property. In 1944, the remaining holdings of Mr. Falk were also sold to Mr. Gaupholm. The Gaupholm residence is visible in a 1946 aerial photograph of the property.

In 1946, no industrial activities were occurring on the Baxter parcel. An aerial photograph of that date shows the entire property, including the southern portion owned by Peter Reilly, to be covered with trees and vegetation. The only building present is the Gaupholm residence. The shingle mill to the north of the Baxter property was visible in a 1936 aerial photograph, but had been demolished by the time that the 1946 photograph was taken.

4.2 Development of Baxter Wood Treating Operations

In 1955 Emil and Sophia Gaupholm deeded their holdings (northern two thirds of the Baxter property) to the Thavis Corporation. In this same year, the Baxter company leased these lands and the Reilly parcel to the south for industrial use. Records from the Washington Archives

indicate that the boiler building and the first 5 tanks in the Baxter tank farm were constructed between 1955 and 1956. These structures are clearly visible in an aerial photograph taken in 1956.

The title search indicates that in 1958, Baxter purchased the southern parcel from Republic Creosoteing Company. the northern parcel was deeded from the Thavis Corporation to Baxter in 1962. Records from the Washington Archives indicate that the shed, boat house and office were constructed on site between 1961 and 1963.

Letters from Joe Morgan III, vice president of Baxter, to the Department of Ecology dated December 11 and December 20, 1989 summarize the history of the wood treating facility. the December 11 letter includes a map of the treating area dated 1962. The map shows the butt tanks, a small retort (6 x 45 feet) and five aboveground tanks in the tank farm. The December 20 letter includes the following statements:

"The plant was built in 1955 and originally operated with three butt tanks, using creosote as a preservative. The office was constructed in 1960 and the poles were brought in by water on the lake...In approximately 1960, a small retort, estimated to be 6 feet in diameter by 45 feet long, was installed using pentachlorophenol for the preservative. This retort was taken out in 1965. It was located between the butt tanks and the lake which is shown on the small 8 ½ by 11 inch drawing that I recently sent you. The door of the retort faced to the south. The butt tanks were taken out of the Renton plant in approximately 1974...In 1965 when the small retort was taken out the large 8 feet diameter by 144 feet retort was installed using pentachlorophenol and creosote and then, as outlined above, the creosote was taken out in 1975. Also light solvent treatment using mineral spirits as a carrier was used at the plant for one charge only. In 1981 of course the plant was shut down and the retort was moved to the Arlington, Washington plant...over time gradually the rest of the plant equipment and buildings were removed from the property."

The layout of the wood treating plant is documented in several separate sources in addition to the Morgan letter quoted above. A 1962 rail map for the Northern Pacific Railroad (former owner of the Burlington Northern rail lines adjacent to the property) includes maps of the rail spurs formerly located on the Baxter property. Washington Archives' records include a photograph and construction details for the butt tanks. A survey map produced for the Port Quendall development project in the 1970's clearly shows the locations of the rail lines, tank farm,

large retort, shop buildings, boiler room and treating room. The outline of the butt tanks are also visible, although it is not clear if they remained in place at that time or whether there was only a depression in the ground. The lagoon which received cooling water discharge prior to the 1970's and surface drainage thereafter is also visible in that survey. Finally, Ecology inspection reports from 1970 through the 1980's include various maps and narratives describing plant operations.

All property histories indicate that both creosote and pentachlorophenol treating solutions were used on the Baxter property. Creosote was used to treat railroad ties and pilings, whereas PCP solutions were used to treat utility poles. Treated wood was stored predominately on the southern portion of the Baxter property, and distributed to purchasers by rail or by truck. While it is possible that some shipment of treated pilings may also have occurred via the Lake, RETEC did not obtain any written accounts of this activity.

Based on the aerial photographs reviewed by RETEC (1936 through 1995), log and tie storage activity was substantially greatest in 1968 and 1974. As noted in the Section 3 (history of the Quendall property), some storage of treated wood south of the Baxter property line is clearly visible in aerial photographs from 1968 and 1974.

Based on the title search results, between 1963 and 1964 Baxter granted easements to METRO and Puget Sound Power and Light (PSPL) for utility construction across the southern portion of the Baxter property. Within its easement, METRO constructed a pressurized sewer line connecting Mercer Island to the Eastside Interceptor. The Eastside Interceptor is located along the Burlington Northern right-of-way to the east of the Baxter property, and was reportedly installed between 1960 and 1964.

In 1964, PSPL purchased from Baxter a 10,000 square foot parcel on which it constructed a switching station. PSPL then used its easement to run overhead and below-ground power lines to the switching station where they connected to submerged lines supplying electricity to portions of Mercer Island. According to a note on a Hart Crowser map from their ongoing remedial investigation work at Quendall property, PSPL conducted shoreline dredging and filling in 1966 as part of their switching station construction. By reviewing aerial photographs from 1956 and 1968, RETEC confirmed that shoreline alterations occurred consistent with the Hart Crowser explanation. The source of the fill material was not documented in the Hart Crowser documents.

Based on comparisons of 1946, 1956 and 1968 aerial photographs, additional dredge and fill activity occurred along the Baxter shoreline during this interval. Between 1946 and 1956 a short canal was cut into the existing shoreline. The use for this canal was not specified in any of the documents reviewed by RETEC. RETEC speculates that it may have been constructed to facilitate removal of logs from the lake. Between 1956 and 1968, the canal was filled in and the shoreline along the lake extended out between 75 and 200 feet. The area of fill is shown on the map attached to this report and extends along almost the entire Baxter parcel. To date, none of the documents reviewed by RETEC has described the source of this fill material.

Waste Discharges and Waste Management

A 1965 waste discharge permit for Baxter (Permit No. 2164) allowed the facility to discharge "waste not to exceed 21,000 gallons per day to Lake Washington". The permit defines waste as cooling and contaminated waters. The permit requires operation of "such treatment facilities as have been approved...to prevent oils and other wastes from entering the lake." The permit specifies that "Chemical sludges or sludge contaminated oils...must be disposed of on land and not discharged to a State waterway".

A later waste discharge permit from 1970 allowed discharge of up to 24,400 gallons of waste per day following "treatment and in-plant control". The permit application described the on-site use of creosote from Reilly Tar, PCP from Monsanto Chemical, and medium aromatic oil from Shell. The application also included the following statements:

"Sludge accumulating in our storage tanks and treating cylinders is periodically cleaned out and hauled away by a septic tank service truck."

"The water that is discharged back into Lake Washington has been treated first in a separating tank where any oil that has accumulated through the condensation of water boiled off the poles and piling in the retort has been drained off and pumped back to the storage tank. The water from the separating tank is then drained into a skimming and settling pond where any remaining oil is eliminated by skimming of the surface oil and settling of any oil heavier than water. The effluent from this pond siphons off below the surface into a pipe going to Lake Washington..."

"We are investigating the feasibility of piping the effluent from our small retort treating system into the existing closed system of our new large retort installation."

A waste discharge permit from 1971 covered only discharge of sanitary wastes to a septic system on site. Baxter indicated on the application that there was no cooling water or process water discharge to the Lake at the time of the application. The permit indicated that "no industrial wastes are being discharged directly into state waters, only storm water run-off." The permit application included a schematic which supported the no-discharges claims. Average use rates for wood preservatives were listed as 436 gallons per day of creosote from Reilly Tar & Chemical, 360 pounds per day of pentachlorophenol, and 900 gallons per day of medium aromatic oil from Shell Chemical Company. The permit application includes the following statement referencing contamination around the butt tanks:

"Collection troughs have been installed in front of the butt tanks and all oily wastes and water from the butt tank area are pumped into decantation system; this is our non-discharge recirculating cooling tower system. Also have a holding tank which can be used for excess water as necessary. The saturated ground area in the vicinity of the butt tanks has been cleaned up. Refer to condition #10 of Permit T-3469."

A March 1972 permit (#4004) for septic tank discharge of sanitary wastes and boiler blowdown includes some discussion of the area later known as the "stormwater pond". The discussion references actions taken to minimize oil discharge into the lake:

"A maintenance schedule for the baffled pond, providing for regular inspection and oil skimming and adequate periodic cleanout shall be submitted to the Department of Ecology for approval...The schedule shall include inspection of the pond effluent for visible oils...inspection of the pond effluent for phenols..."

Inspections of the Baxter facility were conducted in April and August of 1972. The April inspection noted "a small quantity of oil in the outer pond to Lake Washington..." The August inspection referenced soils contamination at the facility:

"There are two ponds on the property. No oil is presently dumped in the first pond. The oil that is there is residual from the soil, from years of dumping there. This first pond didn't have a large amount of oil, but there was some, and the wooden baffles stopped most of this. Effluent went into a second pond which was open to Lake Washington."

In April of 1975, the Baxter Renton plant obtained an NPDES permit (WA-002992-1) for the stormwater pond outfall to Lake Washington. The permit included discharge limits for phenols, chlorophenols and oil and grease. A letter from Baxter to the Department of Ecology describes the disposal methods at that time for waste sludges:

"Solid waste (sludge oil) at our Renton plant is accumulated in a contained area to prevent any discharge. At intervals of 2 to 4 times annually, this waste is disposed of. The present disposal method is through Chempro in Seattle. Waste estimate-5,000 to 6,000 gallons per year of PCP-bearing sludge."

An October inspection report from 1975 included the following statements, referencing the construction of the containment system for the previously-uncontained tank farm area:

"...they have just completed their impervious tank farm floor project as well as their dike system (SPCC). It looked good. The complex as a whole is much improved over what it was when their NPDES Permit was negotiated and finally issued. I did recommend that the ponds be skimmed as often as possible."

NPDES monitoring were reported to Ecology for the period 1975 through 1980. The monitoring reports included data for phenols, chlorophenols, pH and oil and grease. According to NPDES inspection reports, the chlorophenols testing was performed by Reichold Chemical, a supplier of some of the PCP used by the Baxter facility. The NPDES permit was renewed in 1980. A notice of NPDES non-compliance was filed in March of 1981. A follow-up inspection noted that the facility was scheduled for shut-down in July of 1981.

Termination of Wood Treating Operations

In preparation for plant shut-down, Baxter notified Ecology in 1980 that upcoming tank removals would generate up to 2 tons of PCP-containing sludge, and 10 tons of creosote sludges. Baxter filed a Part A RCRA application. Under the Part A application, Baxter also filed a brief (3-page) closure plan, summarizing its plans to move the treating equipment to the Baxter Arlington facility:

"We anticipate that within the next two years the treating equipment and some of the tanks will be moved to our new location in Arlington, Washington and the plant site will be devoted to residences, a marina, a hotel, and similar occupancies. The plant at present is a single cylinder plant...The preservative used is a solution of pentachlorophenol in AWPA Type A hydrocarbon solvent...Certain wastes that are considered hazardous are now, and will be in the future, generated on the property. Some of these wastes are held in the plant more than 90 days. Consequently, the plant applied for interim status as a storer, treater and disposer of hazardous waste. These wastes are all sludges that occur in treatment work tanks and in the gravity separator that removes distillate oils from the cooling water system..."

Correspondence between Baxter and Ecology in 1983 documents Baxter's successful withdrawal of the Part A permit application. Baxter stated that the 90-day rule for waste storage was never exceeded, and therefore the company did not need the RCRA permit. A letter from Ecology dated October 20, 1983, allowed the facility to be withdrawn from interim status without undergoing a formal facility closure procedure.

In 1984, administration of Baxter's lease for state-owned aquatic lands fronting the property (between the inner and outer harbor lines) was transferred from the Port of Seattle to DNR. Baxter entered into a lease with DNR which runs through October of 1996.

In 1986, Baxter requested cancellation of its NPDES permit. The permit was not formally canceled by Ecology until July of 1988. Inspections conducted by Ecology in response to the cancellation request included stormwater sampling in June of 1985, and a follow-up inspection in February of 1986. The February inspection report included the following statements:

"June 1985 stormwater sample results had 24 ppb pentachlorophenol (PCP)...Drainage from former treated pole storage area goes to stormwater pond and to Lake Washington. Pond is baffled for oil separation and has submerged pipe discharge...Tank farm (PCP, creosote, bunker C oil) is contained but has drain valve left open and contamination from dismantling and cleaning tanks. Retort tank (vessel) has been removed..."

A Seattle Times article and Ecology inspection reports document that as part of Baxter's closure activities, the company sold remaining tanks and piping to the Wyckoff company for use at their Bainbridge Island facility. The dismantling and shipment of the equipment was subcontracted to Bainbridge Marine Services Inc. and Contractors Supply. The dismantling of the tanks and piping occurred over the weekend of March 24-27, 1989. Inspections by Ecology and PSAPCA demonstrated that exposures of contract workers to hazardous wastes and asbestos

had occurred, and Baxter was fined \$4,000. An Ecology report dated April 3 describing the incident included the following excerpts:

"A crew of about 6 were dismantling piping and valves from the tanks. A salvage operation was in progress. We suggested that sludge and oil that spilled from the pipes into the containment slab could be hazardous waste...the asbestos that had surrounded the pipes had been crushed during removal and disassembly. The workers had no respiratory or body protection...One of the laborers discussed problems of midnight and illegal disposal practices 'caused' by hazardous waste regulations."

Ecology samples collected during the incident documented PCP concentrations in the sludges and ammonite asbestos in the pipe insulation.

In September of 1991, Baxter conducted grading and filling activity at the site to "reestablish drainage that was altered when freeway work was done last year (clearing of materials, grading). The work took approximately 2 weeks and consisted only of bulldozers clearing and grading the property...Approximately 10 to 12 acres of this 20 acre site was graded..." Additional work performed included the installation of a silt fence and installation of fabric material under the grate covers of two catch basins. Baxter retroactively applied for a Shoreline Substantial Development permit and was granted a SEPA determination of non-significance in June of 1992.

Between 1990 and 1993, Baxter protested the tax valuation of its parcels on the basis that the tax assessment did not take into account the designation of the property as a hazardous waste site. Court documents obtained by Foster Pepper and Sheffelman state the following:

"At some time Baxter retained Woodward Clyde Consultants to provide services related to the cleanup of the contaminated property. In 1996 Woodward Clyde produced a report containing three remediation cost estimates: \$3.7 million; \$4.5 million; and \$5.3 million. The range of such estimates within the industry is typically underestimated. Woodward Clyde has concluded the property will have deed restrictions at the completion of the cleanup."

"The subject property was a burden to the company because of the contamination during the years in question (and continues to this date to be a burden), and was

of no use to the company during 1988-93. Baxter did not market the property during this period because the company decided it was not worthwhile."

Baxter successfully argued that the main parcel had a zero market value during the period in question and that the taxes paid (\$89,435.08) should be refunded. The court decision in favor of Baxter was decided on May 15, 1996.

4.3 Summary of Environmental Activities

The earliest environmental records obtained by RETEC for the Baxter property consisted of the waste discharge permits from the 1960's and 1970's which are described above. The Port Quendall development activities in the 1970's and early 1980's included the Baxter site. However, the focus of contamination investigations during that work was largely on the Quendall Terminals property. Therefore, little of that information (Master plan, EIS, etc.) includes environmental data for the Baxter property.

A proposed marina project at the Baxter property in 1983 included plans to fill the Baxter cove and to construct ponds within the upland areas as habitat mitigation. The application included statements that the sediments and soils were not contaminated, but RETEC considers the data on which these statements were based (Twelker and CH2M Hill geotechnical studies only) inadequate to support these conclusions if 1996 definitions of contamination (i.e., MTCA soil and groundwater cleanup levels) are applied. No analytical data were collected during these geotechnical studies.

Early Investigations

With the exception of the NPDES discharge monitoring conducted between 1975 and 1980, the earliest Baxter analytical data was collected in 1979 and 1980. Baxter contracted with Environmental Science and Engineering (ESE) to perform rainwater analyses. During that work, ESE also sampled the sludges in the stormwater pond. The ESE report included the following statements:

"Process contaminated water is generated in the treating process and as a result of the collection of stormwater runoff from the treating cylinder loading/unloading area. Contaminated process wastewater, which is removed from the treating cylinder as vapor, is condensed, separated from the oil, and routed to a cooling tower where it is evaporated. Stormwater runoff from the treating cylinder loading/unloading area is collected in a sump located directly beneath the door to the treating cylinder and is periodically pumped to the cooling tower where it is evaporated. The cooling tower can evaporate 500 gallons per hour..."

"[stormwater] runoff flows into a system of drainage trenches which lead to two pipes, both of which discharge the runoff into the stormwater retention pond. Stormwater which falls into the diked areas around the preservative work tanks and the back end of the treating cylinder is retained within the diked areas until the drain valves are opened, allowing the water to drain to the retention pond via an underground pipe...The retention pond is approximately 84 feet long, 11.5 feet wide, and 2.5 feet deep. There are several baffles placed across the top of the pond, which prevent surface oil from flowing out of the pond..."

"The plant generates 20,000 gallons of oily, gritty sludge per year in the work tanks and cooling tower. This material is about 65 percent oil and 35 percent water and is trucked by a hauling company to a chemical waste landfill in Arlington, Oregon...Sludge also accumulates in the stormwater retention pond, although at a much lower rate...A layer of sludge with a depth of about one foot was in the bottom of the pond during the plant visit. The retention pond has never been cleaned..."

Stormwater runoff analyzed by ESE was reported to contain PCP concentrations ranging from less than 0.1 mg/L (NPDES criteria) to 1.2 mg/L. Sampling data for the pond sludges was reported by ESE on a volumetric basis. PCP concentrations in the sludges were 62 to 65 mg/L. The total PAH concentrations were reported to be 4,800 to 6,400 mg/L, and oil and grease measurements were reported to be 27,400 to 31,400 mg/L.

Baxter contracted with WCC to perform a site investigation at the Baxter site in the summer of 1983, the same time when WCC was performing an investigation at the Quendall site. The motivation for the investigation was not stated in the report. The investigation followed closely behind the application for marina construction permits in spring of 1983, and barely preceded the identification of Quendall Terminals as a potential source of contamination in Renton Well No. 5. Whatever the motivation, the investigation included soil borings and monitoring well installation. The investigation detected significant soil and groundwater contamination, including

the presence of 6.25 mg/L PCP in a well (BAX-1) located near the door of the large retort. Dioxins (as 2,3,7,8-TCDD) were analyzed for but not detected in several soil samples.

The Port Quendall area was nominated to the NPL list in 1984 after contamination was detected in Renton Well No. 5. As part of the NPL listing process, EPA contracted with their consultant, Ecology & Environment (E&E), to conduct a site assessment at the Baxter site. That assessment was performed in 1986. That assessment included sampling of surface soils (59 samples by random grid), sediments from the lake shore (3 samples), stormwater pond sludge (2 samples), and groundwater sampling (4 wells).

Soil samples analyzed by E&E contained PCP concentrations ranging from below detection limits to 390 mg/kg, with PCP detected in 57 out of 59 samples. During groundwater sampling E&E noted the presence of 6 inches of floating free product in well BAX-1, the same well in which WCC had previously detected high concentrations of PCP. The floating product was sampled and found to contain PCP at a concentration of 2,000 mg/kg, as well as elevated concentrations of PAH. Lake sediment samples collected from Baxter Cove contained PAH and PCP, with PCP detected at a concentration of 8.4 mg/kg. PCP was detected in the sediments of the stormwater pond at a concentration of 111 mg/kg. Dioxin concentrations measured in worst-case soil samples ranged from 2.1 to 14.4 ug/kg (2,3,7,8-TCDD equivalents).

Baxter had WCC conduct additional soil and groundwater investigations in the fall of 1986 to verify the results obtained by E&E earlier in the year. The work included sampling of groundwater from the four monitoring wells, supplemental soil sampling, and analysis of the floating product layer in Well BAX-1. The well adjacent to BAX-1 was noted to have a sheen, but no product layer. PCP was detected at elevated concentrations (0.76 mg/L) in BAX-1 after the floating product layer had been removed and the well purged for 3 well volumes. The WCC data confirmed the presence of PAH in the floating product, but PCP was below method detection limits (even though PCP had been detected in the groundwater of that well). Soil sample data were comparable to the E&E samples collected from the same locations. Though WCC made many of the same observations as had E&E, the WCC report was very critical of the E&E sampling methods and interpretations.

Consent Decree Activities (1988 to 1996)

Despite the detection of hazardous constituents during the E&E site assessment, the Baxter and Quendall sites were not placed on the NPL. After this decision was made, environmental

oversight of the Baxter and Quendall sites was transferred to the Department of Ecology. The Department of Ecology entered into a Consent Decree with Baxter in 1988. The Consent Decree called for a remedial investigation, risk assessment and feasibility study for the site. Baxter contracted with WCC to perform the work called for under the Consent Decree.

The first portion of the Consent Decree work was performed between 1988 and 1990. The work included the following components:

- Installation of additional soil borings and monitoring wells
- Well slug tests and pumping tests to characterize site hydrogeology
- Product measurements
- Sampling of pond sludges
- Trenching around the former butt tanks
- Purging (with Alcanox and water) and resampling of well BAX-1
- A survey for endangered plants and animals on or near the property
- Sampling of sediments in Baxter Cove and along the lake shore
- Production of the 1990 Remedial Investigation report

In the 1990 RI report, WCC estimated that approximately 20,000 cubic yards of soils at the site were impacted with creosote and PCP materials. These contaminated areas consisted of soils around the tank farm and butt tank, as well as the sludges and soils of the stormwater pond. The 20,000 cyd figure did not include the sediments in Baxter Cove which were shown to have PAH concentrations of up to 28,000 mg/kg. PCP was not detected in these sediments. However, in light of the E&E data and data from later sampling events (Ecology sampling 1990 and 1991) it is reasonable to assume that PCP was present, but at levels below the method detection limits (detection limits had been elevated by the high PAH content of the samples). WCC did not attempt to estimate the volume of impacted sediments, stating that because sediment cleanup standards for freshwater had not been developed at that time (nor have they since), the effort was pointless.

Ten separate amendments to the Consent Decree scope of work have been approved to date. These have included demarcation of the northern parcel, additional investigations at the southern parcel, investigation of off-shore sediments, and preparation of a new RI/FS and risk assessment for the southern parcel. This RI/FS and risk assessment is in progress with WCC as of 1996.

North Parcel Demarcation

The 1990 RI report was published as the first volume of a 2 volume set. Originally a second volume was to have followed containing a human health risk assessment. However, Baxter initiated at that time a process to divide the site into northern and southern parcels. A risk assessment (both human health and ecological risk assessments) was then initiated in an attempt to obtain a No Further Action decision from Ecology for the northern parcel.

The risk assessment for the northern Baxter parcel was completed in March of 1992. PCP was omitted from the list of compounds of concern for sediment, because it was not detected in the 9 samples for which analytical data was available at that time.

In May of 1992, Baxter signed a Remediation Security Interest Agreement with Ecology. The agreement referenced the "line of demarcation" created by Baxter between the northern portion (defined in the agreement as Parcel A) of its property and the southern portion (defined as Parcel B). The agreement includes the following statements:

"The real property described in Parcel B does contain hazardous substances requiring remediation under the Model Toxics Control Act. Parcel A represents the area identified by the remedial investigation and by a health risk assessment as being an area that requires no further action under the standards adopted by Ecology pursuant to the Model toxics Control Act...Baxter and Ecology have agreed to the segregation of the area requiring remediation (Parcel B) from the area not requiring remediation (Parcel A)."

"Baxter and Ecology agree as follows: 1. Baxter shall promptly make application to the City of Renton for a lot line adjustment to establish two separate legal parcels as set forth on Exhibit A as Parcels A and B. 2. Ecology agrees to acknowledge to the City of Renton that parcel A has been investigated by Ecology, and has been evaluated by a health risk assessment, and has not been found to be a present threat to human health or the environment. 3. Baxter further agrees that all proceeds from the sale of or disposition of the real property described as Parcel A...will be divided into two separate funds. Forty percent of the net proceeds of any sale or disposition shall be placed in a joint signature bank account or certificate of deposit as described herein. This fund shall be for the purpose of remediation of Parcel B...The remaining sixty percent will be paid directly to

Baxter for its sole use in its sole discretion without any further obligations by virtue of this Agreement...The funds shall be used for quarterly payments for remediation of the Renton site (Parcel B), provided, however, that payment may be made only for remediation expenses that accrue after January 1, 1992."

"...Nothing in this Agreement shall be construed to relieve Baxter or any other person potentially liable with respect to Parcel B from any obligations imposed on them by the MTCA. The parties acknowledge that forty percent of the proceeds of the sale or disposition of Parcel A may not be sufficient to remediate Parcel B..."

Remediation Plans and Waste Designation Issues

Between 1990 and 1996, Baxter has conducted several discussions with Ecology and has prepared conceptual cost estimates and remediation plans for the cleanup of the southern parcel. These discussions have covered in-situ and ex-situ bioremediation. The plans call for excavation and on-site treatment of the identified "hot spots" and in-situ treatment of remaining groundwater contamination. Baxter and WCC have discussed with Ecology the possibility of filling in or capping the Baxter Cove as part of sediment cleanup.

A letter dated November 2, 1990 from WCC to Gail Colburn at Ecology included a detailed discussion of regulatory and permitting issues related to on-site biotreatment of contaminated soils and sludges. The letter includes the following excerpts:

"This letter transmits to Ecology a summary of our proposed cleanup action at the J.H. Baxter Wood Preserving (Baxter) site, including an overview of our understanding of the applicable regulations, to more clearly define the scope of the remedial action. This letter is intended to initiate discussions to resolve some uncertainties that surround our proposed remedial action..."

"The Baxter site is a former wood treating facility that has been chemically impacted with polynuclear aromatic hydrocarbons (PAHs) and pentachlorophenol (PCP). The facility operated until August of 1981. A preliminary estimate indicates that approximately 18,000 cyd of chemically impacted soil may require remediation..."

"Woodward-Clyde Consultants is currently preparing the Remedial Investigation Report for the Baxter site. WCC has had experience evaluating sites with similar contamination. These evaluations have shown that the most technically feasible and cost effective alternative for remediating soils which are chemically impacted with PAHs and PCP is biological treatment of the soils in lined treatment cells. J.H. Baxter is interested in proceeding with the site cleanup activities as quickly as possible...A description of the proposed cleanup action for the soils and a discussion of the regulatory issues are provided below..."

The letter goes on to describe the biotreatment cells, and discuss regulatory issues related to the treatment process. These issues included the following:

- Potential RCRA designation of the soils as a K001 RCRA waste: WCC stated that only surface water runoff from the treated material storage area and stormwater which fell on the preservative work retort was collected and drained to the stormwater retention pond. RETEC's file review, however, indicates that prior to 1971 the pond received cooling water and process wastewater discharges. The letter states "...we believe that it is likely that the chemically impacted soil at the Baxter site will be categorized as a F032 RCRA hazardous waste and will be regulated under RCRA.
- Discussion of RCRA listed wastes and state Dangerous Wastes and the impact of these regulations on the proposed cleanup action.
- Discussion of the land disposal restrictions applicable to K001 wastes and those pending for F032 wastes. The letter states that "...It is unlikely that biological treatment will be able to meet these [BDAT] cleanup standards within a reasonable time-frame. Therefore, if the soil is designated as a listed waste which is restricted from land disposal, and it is not practicable to treat the soil to the designated treatment standards, then the soil may require a treatability variance prior to disposing of the treated soil on site."
- Discussion of a RCRA Part B Permit and RCRA/DW Treatment, Storage and Disposal permit.

- MTCA requirements for cleanup actions including the potential for cleanup standard alternatives to MTCA Method A and B, and the requirements for the depth of contaminated soil excavations.
- Discussions of Dangerous Waste regulations, specifically of the probability that the wastes would classify as Dangerous Wastes under the toxicity rule at that time.

A letter from Ecology to Baxter in December of 1990 responded to WCC's questions about waste designation relating to the remedial action. The letter noted that specific samples from the Baxter site were classifiable as carcinogenic dangerous wastes, and others as Extremely Hazardous Wastes and possibly as State TCLP wastes. The letter also included the following statements:

"...The proposed amendments to Chapter 173-303 WAC exempt on-site treatment processes at TCP sites from having a RCRA dangerous waste facility permit in accordance with WAC 173-303-800. The permit exemption will be limited to cleanup actions proceeding under a formal consent decree or order signed by Ecology pursuant to RCW 70.105D, and will not apply to voluntary cleanups...A TCP site that treats waste on-site must dispose of the treated waste in accordance with the Land Disposal Restrictions (LDR) codified in 40 CFR 268. Pentachlorophenol is an LDR waste. On-site disposal would also be subject to the requirements of 40 CFR 265.300..."

A meeting agenda entitled "1991 Plans for Sites in Renton, Washington" obtained from WCC files includes a discussion of site remediation plans using one- or two-acre biotreatment units. Soil remediation cost tables associated with this agenda (apparently overheads) indicated a 20,000 cyd soil volume cost estimate, unit treatment costs of \$100 to \$150 per cubic yard, and treatment times of 5 to 22 years. Additional overheads regarding a soil biotreatment unit includes the statement "...Information can be used to fulfill a no migration petition in the event that the treatment of the soil is regulated as an F032 waste which is subsequently restricted from land disposal."

A January, 1991 letter from Jim Hanken to Gail Colburn at Ecology includes a detailed analysis of regulations regarding on-site biotreatment at the Baxter site. The letter argues for an exemption from the RCRA Part B permit process and the ability to use site-specific risk-based cleanup levels. The letter describes the on-site wastes as probably F032 or F034 wastes,

apparently with the rationale that this listing provided more treatment/disposal discretion that the K001 listing at that time. The letter does not acknowledge the use of the stormwater pond for treatment of cooling and wastewater discharges:

"The characteristic waste of the J.H. Baxter Renton site is best classified pursuant to newly identified listed waste codes F032 or F034, as set forth in Final Rule published at 55 FR 50450 (December 6, 1990), to be codified at 40 CFR Part 260. F034 is the characteristic waste of concern..."

"In the case of the J.H. Baxter site, F032 and F034 appropriately describe the nature and origin of wastes as documented in the RI/FS study. There is no evidence of the presence of K001 waste. Factually, F034 is the characteristic waste on site. In addition, because of the relatively low concerns for penta, it may be possible to delete the F032 listing under the performance standards set forth in the rule 55 FR 50452."

"Neither the F032 nor the F034 waste classification is currently subject to land ban directly. EPA's position is as follows: Although some of the wastes covered by today's notice are being listed in part because of the presence of hazardous constituents at levels similar to those found in K001, they are newly listed wastes, and therefore, the treatment standards for K001 do not apply to today's newly listed wastes...land disposal for newly identified wastes until such restrictions are promulgated, land disposal of these wastes will not be restricted or prohibited until the Agency promulgates land disposal restrictions..."

At a meeting in December of 1991, Ecology stated that the sludges in the stormwater pond should be classified as K001 wastes. The following are excerpts from WCC meeting notes:

"In describing the media in the stormwater retention pond, Gail considers the material a sludge (based on the K001 definition). I stated that, based on the current physical condition of the material, "sediment" was a more appropriate description. The K001 waste designation refers to: "bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol". We agreed that "sediment sludge" was descriptive of the material (approximately the top 3 feet) in the stormwater pond, and that the media under this material is soil...."

A letter from Ecology to Baxter dated February, 1993, continues the discussions about remedial alternatives. The discussion centers around the permits required to pursue on-site bioremediation, including the applicability of stormwater permits for the treatment beds, SEPA review and Shorelines and Fill and Grade permits.

A soil biotreatability study was conducted between 1991 and 1993 using on-site above-ground soil bins as treatment units. The treatability work was conducted by G.D. McGinnis and J.R. Rughani of Michigan Technological University. The treatability report quantified removals of PAH and PCP during biotreatment.

The most recent use of the bioremediation cost estimates has been to argue in favor of tax revaluation as described in Section 4.2. The court documents stated that the costs presented at that time are likely to understate actual treatment costs.

Sediment Sampling

The earliest sampling of lakes sediments conducted at the Baxter site was that conducted by Ecology and Environment for EPA in 1986. That work detected elevated concentrations of PCP and PAH in sediments of the Baxter Cove adjacent to the pond outfall.

Technical Memorandum No. 1, prepared by WCC under the 1988 Consent Decree, describes the collection and analysis of 19 sediment samples at the Baxter site. Five of these samples were located at the mouth of or within the embayment known as Baxter Cove. The remainder were located along the shoreline of Lake Washington. PAH compounds were detected at elevated concentrations, and extensive wood chips and debris were noted. PCP was not detected at concentrations above 1 mg/kg in any samples, but this observation was likely affected by elevated detection limits for PCP (PCP was analyzed by EPA 8270 along with the PAH, resulting in elevated detection limits for PCP whenever PAH concentrations were elevated). Excerpts from the report include the following:

"Samples taken from locations 62, 63 and 64, near the retention pond outfall, consisted of a black, organic sediment which had a characteristic creosote and septic odor. Sample 65 had only an oily sheen which was generally associated with organic matter (wood chips) within the sample. In the remainder of the samples there was no visible evidence of impact. In all samples excepting those from locations 62 and 63, the auger was advanced to a depth of 15 to 18 inches to verify

that a visibly affected layer was absent at this depth. No such layer was observed in these cores. The vertical extent of visible impact at the outflow of the retention pond (locations 62, 63) could not be evaluated with the available sampling equipment.."

"Samples taken in the embayment from stations 61, 64 and 65 contained levels of total PAH as defined by WAC 173-303 at 200 to 540 mg/kg...Sediment samples 62 and 63 were taken near the storm water retention pond outfall in the embayment...and contained considerably higher total PAH concentrations, ranging from 1,733 to 28,126 mg/kg."

In 1990 Ecology conducted sediment sampling adjacent to the Baxter and Quendall sites. This included four samples on Baxter aquatic lands (inside the inner harbor lines), three samples in the Baxter DNR Lease area, and three samples outside of the DNR lease area. These samples were analyzed for TOC, PAH, PCP, PCBs and selected heavy metals. PAH were detected at elevated concentrations (28 and 30 mg/kg) in the two samples closest to the mouth of the Baxter Cove. Lower concentrations were detected in the samples farther away. Some bioassays were also performed on selected samples from this sampling effort.

In 1991, a second Ecology sampling effort focused on contamination within Baxter Cove. This effort included three samples from within the cove, plus one sample from outside the DNR lease area as a reference sample. Using a combination of EPA 8270 and EPA 8150 analyses, both PAH and PCP were detected in the cove sediments. Concentrations of PCP decreased with distance from the pond outfall, with 24 mg/kg detected in the sample closest to the outfall and less than 1 mg/kg further out. PAH concentrations ranged from 43 mg/kg at the mouth of the Cove to 33,000 mg/kg in the middle of the cove. Bioassays were also performed on samples from the Baxter Cove. The results of Hyalella and Microtox tests both indicated significant toxicity. This toxicity correlated with PAH concentrations within the samples.

Ecology used the combined information at Baxter and Quendall in the ongoing effort define cleanup standards for freshwater sediments. A report was published by Ecology in June of 1992 summarizing the conclusions of bioassay and benthic macroinvertebrate abundance tests performed on the Baxter and Quendall samples.

Under Amendment No. 7 to the Baxter Consent Decree, Baxter agreed to conduct sediment sampling along the Baxter lake shore. This work was performed in February of 1996 and the

results summarized as Technical Memorandum #7. RETEC reviewed a draft copy of this report obtained from WCC. The stated purpose of the work was "to make a determination of whether remedial action needs to be conducted for the South Parcel nearshore sediments." Only Microtox and Hyalella bioassays were performed during the work. No analytical chemistry was performed. All sampling locations were outside of the mouth of Baxter Cove, with a total of six samples collected, plus one reference sample.

Technical Memorandum #7 includes sampling notes that describe the visual appearance of the sediment samples. The notes reference "oil sheen" and "silver sheen" in the samples, as well as black, brown or olive color and abundant wood chips. No significant toxicity was detected by the Hyalella test, but toxicity was reported by the Microtox test. The Microtox response appeared to correlate with black color in the samples, with the greatest response observed in the "clean" reference sample. The results suggest that sulfide may have been present in the samples and affected the results. Microtox is known to be affected by naturally-occurring sulfides.

5.0 SUMMARY OF DOCUMENTS REVIEWED BY RETEC

Table 5-1 is attached summarizing the documents reviewed by RETEC during the development of this historical memorandum. The documents are either on file at RETEC or can be obtained through the public sources referenced in the table.

Table 5-1.

Summary of Information Reviewed by RETEC (as of 7-3-96)

During Environmental Due Diligence for the Proposed JAG Redevelopment Project

Properties		Title	Date	Author	Sponsor	Document Obtained From	Content Summary
ncluded							
	Histo	orical Information					
), X, B, P	1.	Title Searches all parcels	1996	NW Property Research Ass	KRETEC	RETEC	Deeds, recorded leases, easements since first assignment.
), X, B, P	2.	1895 USGS Map	1895	USGS	USGS	UW Suzzallo Library	Shows May creek delta and road to Coleman dock area. Railrad from Newcastle to renton does not stop @ May Creek delta.
), X, B, P	3.	"The Coals of Newcastle"	Jun 1987	Newcastle Historical Soc.	Centenial Project	Renton Museum	Describes coal mining & transportation. Site not used for coal loading. References J.M. Colman history.
), X, B, P	4.	J.M. Colman Exerpts from "Sons of the Profits"	1967	William Speidel	Nettle Creek Pub.	Renton Library	Describes Colman's purchase of the subject properties in order to develop a railroad to the Newcastle Coal Mines.
), X, B, P			Mar 3, 1979	Clarissa Fawcett	Clarissa Fawcett	Renton Museum	One of the Colman family. Describes Colman settlement, role in railroads, coal by rail, etc
2, X, B	6.		1906	C. Colman, WA State	C. Colman, WA State	DNR Files	1906 purchase of aquatic lands after lake was platted by the state.
), X, B, P	7.	1914 DNR Map of Project Area, Correspondence	1914	DNR, Corps, Seattle	DNR, Corps, Seattle	DNR Files	1914 map (before lake lowering) and correspondence describing surveys and survey datum. Confirms 1920 DNR Map.
	8.	Town Crier re: May Creek delta pre-1916	Apr 14, 1917	M.J. Carter	The Town Crier	UW Allen Library	Describes delta after lowering of lake in 1916. Fire rings and stumps below 1916 water level.
), X, B	9.	USGS Open File Report (81-1182)	1983	Michael Chrzastowski	USGS	USGS Publications	Summarizes info re: lowering of Lake Washington. Includes map and references list.
), X, B, P	10.	Dept. Natural Resources Map from 1920	1920	DNR, Army Corps	DNR, Army Corps	DNR Files	Shoreline maps from pre - and post - 1916. Some ownership and land use information shown on maps.
1	11.	Photographs of early lumber mills on Lake WA	circa 1920	Renton Museum	Renton Museum	Renton Museum	Photographs of Stetson Mill & Kennydale Mill
), X, B	12.	Sanborn Maps	1927	Sanborn Map Co.	Sanborn	Renton Library	Map shows Lake Washington Mill Co. and Washington Spar & Lumber, but exact location of sites not clear.
2, X, B, P	13.	Kroll Maps	1912 - present	Kroll Map Co.	Kroll Map Co.	Kroll Map Co.	Shows ownership and land use, though dates on maps don't match with title search dates ——map revisions likely lag behind.
	14.	Harbor Line Commission Report	Dec. 1972	Ecology, Attorney General	WA Legislature	DNR Files	Describes sources for DNR Maps and harbor lines.
,			Feb 29, 1984	DNR Marine Land Mugmt	DNR	DNR Files	Describes DNR Maps and surveys during 1908 – 1921 period.
			1936-1995	Walker & Associates	RETEC		dShows land use of subject properties. Used to develop composite maps for historical memo.
), X, B, P		WA Archives records	1916 – 1996		King County	WA Archives (Burien)	Information on parcel transfers and buildings. Photographs of many buildings.
·			circa 1943		Seattle Times	Renton Museum	Indicates mill used for construction of wooden boats (barges, tugs). Mill No. 2 to support shipyard. Plans for post -war commercial boats
}		•	Mar 1983	CH2M Hill	Quendall.	Hart Crowser	Describes two sumps, closure of north sump. Describes PACCAR fill, oil slicks, arsenate use.
- 1		Ward Roberts Written History (1981)	1981	Ward Roberts	Quendall	Hart Crowser	Includes map. Describes big tanker spill. General plant history, closing in 1970. Tank 18 explosion, sump use, sewer, etc.
		Interviews with Ward Roberts (Ecology '89)	Oct. 19, 1989		Dept. of Ecology	Ecology Files	Extensive descriptions of Reilly Tar operation (superintendent/mgr.)
			March 1958	DRWG	Republic Creo.	Hart Crowser	Map indicates "corrected and redrawn" through 1969. Lots of details re: plant layout and piping.
			Not specified	Renton	Renton	Renton Library	Map shows annexation of paarcels as either 9-14-59 (Ord 1791) or 7-6-67 (Ord. 234X)
		Polk & Cole Directories	1962 – present	Cole, Polk	Cole, Polk	Renton Library	No directories for subject parcels prior to 1962 parcels not in Renton city limits at that time.
), X, B, P			April 8, 1947	City of Renton	Renton	Renton Library	Shows northern city limits at Shuffleton. May Creek area outside city limits & not shown.
D. X, B, P			Nov. 1962	NPRR	NPRR	Hart Crowser	Shows railroad mainlines, spurs and crossings.
), X, B, P			July 1967	City of Renton	Renton	Renton Library	Shows zoning of subject parcels as "H-1" (heavy industrial) in 1967
			8/70 to 10/70	Reilly/Iverson	Reilly	Hart Crowser	Contracts cover plant demolition & removal, as well as tar removal from North sump.
			Dec 3, 1987	Ecology	Ecology	Ecology Files	Detailed overview of company leadership and assets. Little specific info. on subject properties.
., , , ,		1970's Survey for Port Quendall	Not specified	Baylis, Brand & Wagner	Quendail	Jim Hankin	Map shows elevations, structures, lagoons & shoreline.
-		PLP Search Results	Dec 1990		Ecology	Ecology Files	Extensive documentation of operations @ Re
		Baxter summary of property history	Dec 20, 1989	Baxter	Baxter	Woodward Clyde	Letter to Ecology describing history of the plant.
•			Sep 22, 1989	Michael Lloyd	Woodward Clyde	Woodward Clyde	Letter to file summarizing early history of the Baxter environmental project.
			July 15, 1995	Kenneth Oyler L.S.	Baxter	Baxter & Busch Hischings	Map shows easements and plat lines.
, X, B, P	33.	King Co. Assessors Records, Maps	May 1996	King Co.	King Co.	King Co. Assessor	Printouts of 1/4 section maps and publicly—available information on each parcel.
ļ	Zoni	ng/Planning/Architectural					\cdot
), X, B	1.	Port Quendall Pre - Draft Consultation Report	June 21, 1976	Hillis, Phillips,	Port Quendall	Ecology Files	Extensive documentation of environmental conditions — with photographs. Also development plans.
		Comments of MUSKOX Committee re: Port Quendall	Dec 20, 1979	CH2M Hill	Port Quendall	Hart Crowser	Detailed regulatory comments and concerns ——can probably be used to predict agency concerns.
1			June 1981	CH2M Hill	Port Quendali	Ecology Files	Development plans, minimal mitigation of contamination problems proposed.
	1	· · · · · · · · · · · · · · · · · · ·	Sept 1981	CH2M Hill	Port Quendail	Ecology Files	Development plans
-, ,		· · · · · · · · · · · · · · · · · · ·	June 1981	СН2М НіЛ	Port Quendali	Ecology Files	Heavy focus on residential and water-dependent commercial. Two marinas. Fill for pollution control. No industrial.
			Jun 14, 1981	Seattle Times	Seattle Times	Ecology Files	Describes 30-yr plan of \$400 million development. Mentions coal shipping part of history.
-		Final EIS for Port Quendall	Feb 1982	СН2М Нії	Port Quendail	Ecology Files	Development plans
), X, B		Port Quendall Marina Project File	1980-1983	Ecology, CH2M Hill	Port Quendali, Ecolo		MUSKOX Meeting Minutes. Corps 404 permit application. Mitigation plans.
<u> </u>	9.	Application for Dredge, fill, marina construction	8/80 to 3/83	Baxter, Corps	Baxter, Corps	DNR Files	Application to fill Baxter cove, straighten shoreline, install marina slips. Also dredging & drainage.
	Goot	technical Investigations					
			June 1, 1960	Metropolitan engineers	METRO	METRO Library	Work to locate East side interceptor. One boring near Barbee Mills.
	2.	1963 Soils Investigation METRO	June 13, 1963	Metropolitan engineers	METRO	METRO Library	Geotech work along proposed East side interceptor. Fifteen borings along railroad near subject parcels.
, P	3.	1975 Soils Investigation METRO	Nov 10, 11975	Shannon & Wilson	METRO	METRO Library	Borings along May Creek to intercept with East Side line. Borings near Barbee Mills & Pan Abode
Q, X, B		Twelker Geotechnical Studies	1971 - 1975	Twelker	Port Quendall	Ecology Files '83 WCC	
	5.	1978 Geotech Investigation by CH2M Hill	1978	CH2M Hill	Port Quendall	Ecology Files	Includes summary of previous investigations, map and engineering analysis.
2		Geophysical Investigation of Quendall	Oct 1988	WCC	Port Quendall	Ecology Files	
Q, X, B, P	7.	Mercer Pump Station Manual METRO	June, 1992	METRO	METRO	METRO Library	Includes map of East Side, Mercer & May Creek interceptor locations & elevations.

X: Baxter Property

B: Barbee Mills Property

P: Pan Abode Property

(Page 1 of 5)

Table 5 – 1.

Summary of Information Reviewed by RETEC (as of 7 – 3 – 96)

During Environmental Due Diligence for the Proposed JAG Redevelopment Project

operties	T	Title	Date	Author	Sponsor	Document Obtained From	Content Summary
cluded	<u>l</u>						- Content Summary
	1.	•					
į	Loga		Y	- · · · · · · · · · · · · · · · · · · ·			
	1.	Reilly Tar/Quendall Purchase/Sale Contract	June 15, 1971	Reilly/Quendall	Reilly/Quendall	Ecology Files	Some historical information referenced. Includes Schedule A and Supplemental Agreement.
	2.	Site Hazard Assessment/Ranking	Not Indicated	Ecology	Ecology	Ecology Files	
	3.	Renton Well No. 5 Documents	1983 to 1984	Hanken, Converse	Quendall, Renton	Ecology Files	Contamination was detected in Well No. 5 which was blamed on Quendall. Well is 1 mile from site.
	4.	Hanken comments on 1985 Ecology Assessment/rank	Mar 4, 1985	Jim Hanken	Quendall	Ecology Files	Hanken protests site nomination to Superfund list. Reference to PCP hit in soil @ Quendall.
	5.	Times article re: EPA Superfund decision	May 28, 1986	Seattle Times	Seattle Times	Ecology Files NPDES	EPA decided not to place Port Quendall on NPL
	6.	1988 Consent Decree for Quendall	Oct 1988	Dept. of Ecology	Ecology/Quendall	E∞logy Files	
	7.	Cost Recovery Complaint/Attempts v. Reilly Tar	2/88 to 11/91	Hanken, Reilly	Quendall, Reilly	E∞logy Files	
	8.	Reilly Tar Subpoena for WCC Documents	Feb 20, 1991	Stoel, Rives,	Reilly	Woodward Clyde	Reilly subpoena for WCC documents to defend themselves against Quendall Terminals law suit.
	9.	Completion summary for 1988 Consent Decree	May 14, 1993	Woodward Clyde	Quendall	Ecology Files	Itemizes compliance with Consent Decree requirements.
	10.	1993 Agreed Order for Quendall	Dec 1, 1993	Dept. of Ecology	Ecology/Baxter	Ecology Files	
	11.	Hanken Appeal to Ecology to Pursue PLPs for TPH	Aug 1995	Jim Hanken	Baxter	Hart Crowser	References Ecology PLP search and appeals to Ecology to seek "participation" of these PLPs.
i	12.	Withdrawl of Part A Application for TSD Status	Oct 20, 1983	Ecology	E∞logy	Ecology Permitting File	Facility remains a RCRA generator, but never technically became a TSD.
i	13.	Site hazard assessment	Mar 16, 1985	Ecology	E∞logy	Ecology "Pre-RI" files	Includes overview of site, summary of ESE sampling data from 1980.
	14.	Newspaper article re: Fines for asbestos problem	Apr 11, 1987	Seattle Times	Seattle Times	Woodward Clyde	Describes March 1987 tank dismantling and asbestos exposure, resulting in \$4,000 fine from PSAPCA.
	15.	Consent Decree for Preliminary Site Inspection	Nov 17, 1988	Ecology, Baxter	Ecology, Baxter	Jim Hanken	Decree references PAH and PCP contamination. Scope of work for PA referenced but not attached.
i	16.	Amendments 1-4 to 1988 Consent Decree	Jun 5, 1989	Ecology, Baxter	Ecology, Baxter	Woodward Clyde	S&A protocols, repositioning of wells/borings, sediment investigation, butt tank excavation, well 1-A decontamination.
	17.	Amendment No. 5 (Trenching, pond investigation)	Apr 11, 1990	Woodward Clyde	Baxter	Woodward Clyde	New monitoring wells, changes to pond sampling plans.
	15.	Amendment No. 7 (RI/RA/FS Workplan)	Dec. 1993	Woodward Clyde	Baxter	Woodward Clyde	Includes work for south parcel soil/cove operable unit only. Includes risk assessment & FS.
	19.	Amendment No. 9 (DNAPL Monitoring)	7/92 to 10/92	Woodward Clyde	Baxter	Woodward Clyde	Sets scope for product investigation.
	20.	Amendment No. 10 (Fate & Transport Analysis)	Not Specified	Woodward Clyde	Baxter	Woodward Clyde	Sets scope of work for contaminant fate & transport analysis to be conducted as part of RIFS.
	21.	Scope of Work for Line of Demarcation	11/89 to 9/91	Woodward Clyde	Baxter	Woodward Clyde	Meeting notes describing formation of the Demarcation scope of work and Ecology concerns.
	22	Baxter-Ecology Agreement re: North Parcel	May 15, 1992	Ecology, Baxter	Ecology, Baxter	Woodward Clyde	Specifies NFA for north parcel and requires 40% of sale proceeds to go toward remediation of southern parcel.
	23.	Final Line of Demarcation	Jun 10, 1992	Woodward Clyde	Baxter	Woodward Clyde	Communication of final boundary lines to Ecology.
	24.	Renton DNS for Grading/fill at Baxter	Jun 24, 1992	Renton	Baxter	Woodward Clyde	DNS obtained retroactively after Baxter had graded the site without permits.
	25.	Tax Revaluation Case Decision	May 15, 1996	King County, Baxter	King County, Baxter	Foster Pepper	Refunds Baxter taxes because property was "worthless" between 1989 and 1993.
	26.	1993 Agreed Order for Shoreline Repair, Revegetation		Ecology	Ecology, Renton	DNR Files	Requires Barbee to restore 1985 shoreline of May Creek, "repair" underwater habitat, & revegetate shoreline of creek.
1	27	Shoreline Relocation & Revegetation Plans	Mar 10, 1994	Lloyd & Assoc.	Barbee Mills	DNR Files	Plans outline work as required under 1993 Agreed Order
		Shore-interaction of Reversation 1 is in	Mat 10, 1994	Libya & Associ	Dai dee Milis	DIKK FRES	Transcrime work as required under 1993 Agreed Order
	Rom	edy Selection/Remedial Actions					
	1.	Drawings of Proposed Tar Sumps	Est. 1970's	Not specified	Quendall Terminals	Hart Crowser	Shows collection of tar from soils & dredged sediments via sump, line to tanks for recycle.
- 1	2.	Twelker Proposed Sediment/Seepage Control	Oct 11, 1973	Twelker	Quendall Terminals	Hart Crowser	Proposes engineered collection of contaminated GW and biotreatment in on-shore of off-shore lagous.
	3.	CH2M Hill Engineering for Twelker Lagoons	Oct, 1976	CH2M Hill	Quendall Terminals	Hart Crowser	Develops design details & drawings for Twelker off-shore lagoons.
	4.	Health Effects Assessment former Reilly Tar Site	Apr 1985	CH2M Hill	Port Quendall	Ecology Files	Recommended institutional controls and site containment as only corrective actions.
l	 5. ·	In Situ Biofeasibility Investigation @ Quendall	July, 1992	Woodward Clyde	Baxter		es Soil & GW samples analyzed for DO, micro, conventionals to support in situ biotreatment engineering.
- 1	6.		April, 1992	Woodward Clyde	Baxter		es DNAPL present in five wells. Pumping & recovery tests performed on two wells.
	7.	Final RI/FS Work Plan for Quendall Terminals	Dec 23, 1994	Hart Crowser	Baxter/Quendall		es Plans for risk assessments, limited RI work, FS work.
	8.	Cleanup Levek Memorandum, Quendali	Mar 25, 1994	Hart Crowser	Quendall Terminals		es Referenced MTCA Method B for soils, MCLs for lake water. Limited discussion of practicability.
	9.	Alternatives Screening Memorandum, Quendall	Apr 4, 1994	Hart Crowser	Quendall Terminals		es Includes biotreatment and containment as well as all the usual remedies.
- 1	10.	Soil biotreata bility study report — Quendall soils	Jan 15, 1996	Utah State/Hart Crowser	Baxter/Quendall		es Soil pans and slurry reactors on PAH—contaminated soils.
1	11.	Activated Carbon Treatability Testing	1/96 to 5/96	Hart Crowser/Calgon	Quendall Terminals	Hart Crowser	Estimated carbon usage rates for contaminated groundwater treatment.
	12.	Baxter remediation cost estimates	Aug 30, 1990	Woodward Clyde	Baxter	Woodward Clyde	Remediation conceptual design & costs for in situ bio, land treatment, but sediment cleanup costs excluded.
	13.	WCC Analysis of Possible Operable Unit Definitions	Oct 5, 1990	Woodward Clyde	Baxter	Woodward Clyde	Memo debates whether or not to include cove sediments in cleanup operable unit.
	14.	Proposed Bioremediation and Permitting Analysis	9/90 to 1/91	WCC/Hanken		Woodward Clyde	Includes cost and schedule estimates for on ~ site biotreatment of excavated soils.
	15.		9/90 to 1/91 9/91 to 4/92		Baxter Barter Bartes	DNR Files	Baxter site graded in 1991. Application for "emergency erosion control measures" (silt curtain) late 1991.
		WCC Analysis of permitting requirements for bio.		Renton, Baxter	Renton, Baxter		Daxier site gradeu in 1991. Application for emergency erosion control measures (succurain) late 1991.
	16.	Stormwater Control Improvements (91-92)	9/91 to 4/92	Renton, Baxter	Renton, Baxter	DNR Files	Baxter site graded in 1991. Application for "emergency erosion control measures" (silt curtain) late 1991.
	17.	1992 Human Health Risk Assessment for N. Baxter	March, 1992	Woodward Clyde	Baxter	Woodward Clyde	Document used to argue for No-Further Action for northern Baxter parcel.
	18.	1993 Baxter Soils Biotreatability Study Ecology analysis of ARARs for bioremediation	Jan 15, 1993 Feb 1, 1993	Woodward Clyde Ecology	Baxter Ecology	Woodward Clyde Woodward Clyde	Roughly 70% removal of total PAH and PCP, though significant variability during testing. Analysis of required permits.
	19.						

X: Baxter Property

: Barbee Mills Property

P: Pan Abode Property

(Page 2 of 5)

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During Environmental Due Diligence for the Proposed JAG Redevelopment Project

Properties Included	Title	Date	Author	Sponsor	Document Obtained From	Content Summary
ì						
.	Regulatory Opinions/Internal Correspondence	No. 4 4042	I Maren - (Barrier)	D	77 C	Parity and the Control of the Contro
- 1	 EPA & Ecology Comments re: 1983 cleanup plans Ecology Guidelines for Log Yards ~- Sept '87 		J. Morgan (Baxter)	Baxter	Hart Crowser	Describes hydraulic containment system w/ POTW discharge and DOE & Ecology comments.
T I	4 3 3 3 3 3 3 3 3 3 3	Sep 1987	Ecology	Ecology	Ecology Files	Sets generic agency guidelines for log yard stormwater management.
_	 Ecology Comments re: Woodward Clyde Work Gail Colburn notes re: R I/FS 9/3/92 	10/85 to 9/92	Ecology	Ecology	Ecology Files	Letters, memos and meeting notes describing Ecology requests and comments.
-		Sep 3, 1992	Ecology	Ecology	Ecology Files	Detailed meeting notes describe discussions about RI, remedies, sediments, etc.
1	- · · · · · · · · · · · · · · · · · · ·	2/94 to 11/94 3/87 to 9/88	Ecology	Ecology	Hart Crowser	Letters, memos and meeting notes describing Ecology requests and comments, mostly re: RI/FS work plan.
	•	Nov. 1988	Ecology	Emless	Factor: Han Wassa Files	Consent down property Very 88 mileting and and and No. 1991 in File
1	9. Ecology Comments on Woodward Clyde Tech. Memos		Ecology	Ecology Ecology	Ecology Haz Waste Files	Consent decree proposed Nov 88, public comment conducted. No consent decree in file. Meeting Minutes and correspondence summarizing Ecology comments on WCC data.
1	10. Ching-Pi Comments re: Sediment Cleanup	Oct 31, 1989	Ecology	Ecology	Ecology Files Woodward Clyde	Ching—Pi recommends removal of the contaminated lake bottom sediments.
	•	7/91 to 8/91	Ecology/WCC	Ecology/Baxter	Woodward Clyde Woodward Clyde	Ecology and SAIC comments prior to approval of demarcation line.
	~	9/91 to 11/91	Ecology/WCC	Ecology/Baxter	Woodward Clyde	Ecology Comments and WCC responses to those commments.
	~	4/92 to 9/92	Ecology/WCC	Ecology/Baxter	Woodward Clyde	Comments from Ching—Pi about investigations near BAX—14.
1		Aug 17, 1993	Ecology	Ecology	Woodward Clyde	Comments re: sediment fate & transport and risk assessment calculations.
		Nov 5, 1992	Ecology	Ecology	E∞logy Files	Mike Hubbard of Trammel Crow spoke w/ Colburn about GW contam, with Pb and Cr. Discussed options.
	is. Sectory 1978 Processed in Co. Co. Condumnation	1101 5, 1992	Loology	LUNCKY	Ecology Piles	Mile fruitatud frammer ciow spore w/ Colour acout ow Collam, with 10 am Cr. Discussed Options.
.].	Regulatory Inspections/Observations/Permits			·		
. 1.	1. July 1946 Inspection by Pollution Control Commission		WA PCC	WA PCC	Ecology Files	Describes lack of spill control on tanker dock and rail trestle over creek bed. Reilly response in file.
		Jun 5, 1956	WA PCC	WA PCC	Ecology Files	Permit allows 50,000 gal/day discharge of waters to Lake WA.
j		May 24, 1961	WA PCC	WA PCC	Ecology Files	Permit allows 28,000 gal/day discharge of waters to Lake WA.
		Мат 14, 1966	WA PCC	WA PCC	Ecology Files	Permit allows 10,000 gal/day discharge of waters to Lake WA.
	5. Feb. 1970 Inspection by WA Pollut. Cntrl. Commission	-	WA PCC	WA PCC	Ecology Files	Describes two lagoons, one discharging to lake WA through the tules, the other a "ravine surrounded by trees"
		2/71 to 6/71	Baxter, Reilly, Ecology	Baxter, Reilly, Ecolog		Describes conditions of site and recent history. Discussions with Reilly & buyers about liability for contamination.
				Coord. Permit Proces	sEcology Files	Describes attempt to permit industrial uses as a stop—gap funding measure to pay for site reclamation.
		Mar 29, 1972	E∞logy	E∞logy	Ecology Files	Describes construction of tank farm dikes and two tar lagoons. Additional observations.
ı		Sep 1, 1972	Ecology	Ecology	Hart Crowser	Describes displacement of tar/sludge from filled lagoon toward lake.
1		1973 to 1974	Ecology, DNR, Corps	E∞logy	Ecology Files	Reference to "two tar storage lagoons" and planned cleanup under redevelopment plans. NPDES denied.
1		Aug 30, 1974	Ecology	E∞logy	Ecology Files	Inspection requested by the City of Renton Planning Dept Noted "oil draining from tank farm", other observations.
		5/76 & 9/76	Ecology	Ecology	Ecology Files	Inspections related to permitting process for tank farm use (SPCC plans, NPDES plans, etc.). Typical observations.
		Apr 26, 1984	METRO	METRO	Ecology Files	Baxter had requested review of permit application for 40,000 to 50,000 gpd from GW system to begin 1989.
	14. 1985 & 86 Inspections re: Non-permitted dirt moving.	9/85 to 5/86	Ecology	Ecology	Ecology Files	EPA received reports of non-permitted excavations. These inspections resulted, but did not document activity.
}		Apr 11, 1996	Ecology	Ecology	Hart Crowser	Requires Quendall to install six curtains. Other observations.
ĺ	16. Baxter Pollution Control Permit No. 2164	June 7, 1965	WA Pollution Control Com	IWA PCC	Ecology Files	21,000 gal/day discharge of cooling waters to Lake WA
1	17. Baxter 1970 Waste Discharge Permit	1970	Ecology	Ecology	Ecology Files	Oil – saturated ground near butt tanks noted. 21,000 gpd discharge to Lake WA.
ļ		1971	Ecology	Ecology	Ecology Files	No more discharges to Lake WA. Only septic discharge of sanitary wastes.
ł	19. March 1972 Septic waste discharge permit No. 4004	Mar 14, 1972	Ecology, Baxter	Ecology, Baxter	Ecology Files	Permit, application. Includes < D.L. limit for chlorinated phenols.
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	20. April 1972 Inspection by Ecology	April 1972	Ecology	Ecology	Ecology Files	Oil Noted in outer pond
į:		August 1972	Ecology	Ecology	Ecology Files	Notes "oil [in ponds] is residual from soil, from years of dumping there"
]:		April 21, 1975	Ecology	Ecology	Ecology Files	First NPDES issuance. File includes related correspondence. Includes 0.1 mg/L chlorinated phenols limit.
<u>}</u> ;		Oct. 3, 1975	Ecology	Ecology	Ecology Files	Notes improvement since NPDES issuance. References SPCC Plan and new impervious surface in tank farm.
· :		Sept 20, 1976	Ecology	Ecology	Ecology Files	Descriptions of plant operations
);		June 1980	Ecology	Ecology	Ecology Files	Inspection performed under RCRA Part A permit application jurisdiction. Many notes.
	26. Application for 1980 NPDES Permit	Oct 22, 1980	Baxter, Ecology	Baxter, Ecology	Ecology Files	Permit, application and suporting materials. Includes chlorinated phenols limit of 0.1 mg/L.
[;	27. NPDES non-compliance letter	March 3, 1981	Ecology	Ecology	Ecology Files	Effluent limits exceeded
1:		June 30, 1981	Ecology	Ecology	Ecology Files	Conducted under Baxter Part A Application (never finalized).
[:		July 13, 1981	Ecology	Ecology	Ecology Files	Notes sampling of pond sludge by Ecology. Notes company plans to move treatment plant to Arlington.
		June 15, 1982	Ecology	Ecology	Ecology Files	Notes that facility is inactive, but Baxter not "officially close this in forseeable future" to "keep their options open".
	31. Ecology Inspection to set scope for E&E site assessmen		Ecology	Ecology	Ecology Haz Waste Files	Inspection served as basis for 1986 E&E site assessment & sampling.
	 •	Feb 21, 1986	Ecology	Ecology	Ecology Files NPDES	Site descriptions
	•	April 3, 1987	Ecology	Ecology	Ecology Files NPDES	Describes actions re: asbestos & waste problems during final demo of tanks. Includes photographs.
	. .	July 27, 1988	Ecology	Ecology		· · · · · · · · · · · · · · · · · · ·
			Ecology	Ecology		Approves coverage for site. Requires stormwater pollution prevention plan.
	36. Dangerous Waste Compliance Inspection & responses		Ecology	Ecology	Ecology Files	Dec. inspection in response to complaint. Mill received "unsatisfactory" rating. April inspection still had some problems.
	37. Barbee Mills Complaints File Ecology	1992 & 1994	Ecology	Ecology	Ecology Files Complain	at Complaints related to washing of press area & discharge to stormwater. First led to series of actions.
			Lloyd & Associates	Barbee Mills	Ecology Files	Anticipated discharge less than 50 gal/day.
	39. Dangerous waste compliance inspection & responses		Ecology	Ecology	Ecology Files	Minor findings (labelling, etc.)

X: Baxter Property

B: Barboe Mills Property

P: Pan Abode Property

(Page 3 of 5)

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Included							
	Wast	e Characterization/Disposal Records					
Q I	1.	Quendall Haz Waste File	1980 ~ 1989	Ecology, EPA, Quendall	Ecology, EPA, Quen	d:Fcology Files	Describes 1980 disposal of coal tar & creosote sludges
	2.	Ecology Classification of Investigation Wastes	4/89 to 4/90	Ecology, WCC	Quendali		Detailed analysis of waste designations at Quendall for drill cuttings, etc
	ı	Letter from Baxter to Ecology	Aug. 13, 1975	Baxter	Baxter	Foology Files Rayter NP	Photes 5,000-6,000 gallons of PCP-bearing sludge disposed annually @ ChemPro
	4.	Baxter Plant Closure Plan	circa 1980	Baxter	Baxter	Ecology Haz Waste Files	Describes current plant processes & PCP use. Lists planned plant move to Arlington followed by sale of remaining tanks.
			Nov 15, 1983	Baxter	Baxter	Ecology Files	Includes manifests for haz wste hauled out during "the period when we were getting ready for our close down".
		Dangerous Waste Notification re: tank sludge disposal		Baxter & Ecology	Baxter & Ecology	Ecology Files	File states "renton plant closed Aug 30, 1981". Ecology notified that Baxter planning disposal of 2 tons PCP sludge, 10 tons creosote sludge.
		1990 Waste Classifications for Baxter by Ecology	12/89 to 12/90	Ecology/WCC	Baxter & Ecology	Woodward Clyde	Discussions re: investigation derived wastes. References K001 and dangerous wastes.
		1990 Waste Classifications for by Woodward Clyde	7/91 to 12/91	Ecology/WCC	Baxter & Ecology	Woodward Clyde	Internal WCC Memo re: dangerous waste and X compounds. Ecology states K001 definition for pond sludges in Dec. meeting.
	9.	Disposal of Wood & Debris in 1993	Jan 19, 1993	Ecology	Ecology	Woodward Clyde	Letter re: Baxter request to dispose of wood and debris at site.
В	10.	Barbee Mills Waste Minimization Plan	Jan 27, 1992	Lloyd & Associates	Barbeo Mills	Ecology Files	Describes waste on site. References UST removal (gas & diesel). Mildeweide, paint, oils, thinner.
В	11.	Dangerous Waste Notification	June, 1993	Barbee Mills	Barbee Mills		s1 - time application for disposal of 800 pounds of F-003 waste thinner.
ł	Water	r Quality					
Q		Review of Water Quality Data for Port Quendall	Oct, 1977	СН2МНШ	Port Quendall	Ecology Files	Describes some 1974 toxicity testing of oil/creosote seepage. References some GW data. Includes bibliography for lake & creek data.
		Lake Current & Water Quality Studies	Oct 1979	СН2М Нії	Quendall Terminals	Hart Crowser	Nutrients, solids, O&G, DO, coliform, currents, etc. No contaminant monitoring.
	3.	Baxter NPDES Monitoring Data	1975-1980	Baxter	Baxter	Ecology Files Baxter NP	Includes PCP Monitoring
		ESE stormwater and pond sludge sampling	Feb 19, 1981	ESE	Baxter	Ecology Files	PAH (4-6 mg/L) & PCP (65 mg/L) measured in pond sludges. Stormwater from pond up to 1.2 mg/L.
			July 16, 1985	Baxter, WCC	Baxter	Ecology Files Baxter NP	PCP @ 24 ug L in discharge.
		May Creek Basin Plan	Not specified	METRO & Agencies	Ecology	Hart Crowser	Work plan for EIS to improve May Creek water quality
			Nov 7, 1979	METRO	METRO	METRO Library	Creek flow and pollutant loadings (metals, nutrients, BOD) during 1978 & 1979. Background info. on creek.
			July 2, 1991	Lloyd & Associates	Barbee Mills	Ecology Files	Low levels of metals & oil & grease. Pentachlorophenol detected at 0.3 ug/L one sample.
<u>B</u>	9.	Stormwater sampling plan	March 6, 1993	Lloyd & Associates	Barbee Mills	Ecology Files	Describes planned outfall sampling, but data not in files.
1							
		nent/Ecological Investigations		<u> </u>			
Q, X		Twelker off-shore Geotechnical Studies	1971 – 1975	Twelker	Port Quendali	Ecology Library	Boring logs for off-shore borings include some descriptive notes re: contamination.
		Port Quendall Offshore Sediment Investigation	Dec. 1983	EPA	EPA		aDiver survey & sediment sampling. Divers noted some free product. Also noted live fish & plants. PAH in core samples. No PCP, metal
		Char. of Aquatic Resources in S. Lake WA	Nov. 19, 1990	EVS Consultants	Woodward Clyde	Han Crowser	Describes fisheries resources in Lake WA. Also history of lake contamination.
			June 1992	Ecology (Bennett, Cubbage		Hant Crowser/Ecology	PAH, PCP, conventionals, bioassays, macroinvertebrates tested on Quendall & Baxter 2-cm grab samples.
			May, 1991	Ecology	Ecology	Hart Crowser/Ecology	PAH, PCP, PCB, metals, conventionals sampling in front of Quendall & Baxter using 2-cm grab samples. Some bioassays, etc.
		Tech. Memo No. 1 Nearshore Sed. @ Baxter	Aug 1986 1989	Ecology & Environment, In		Ecology Files	Extensive soil, GW, lagoon sediment & lake sediment testing. Some dioxin data. Free product in treatment area. PAH & PCP everywhe
		Sediment Sampling in the Baxter Cove	May 20, 1992	Woodward Clyde	Ecology	Ecology Files	PAH & PCP detected in lake sediments. PAH, PCP, PCB, SVOC, bioassay analyses in 2—cm grab samples in the cove. High PAH (3,300 mg/kg), some PCP (24 mg/kg), no PCBs
			Jun 12, 1996 -	Ecology Woodward Clyde	Ecology Baxter		Samples along lake shore, outside of cove. Bioassays only, no chemistry performed.
		May Creek Delta Observations	May 11, 1975	Dr. Stephen Martin	METRO	Woodward Clyde METRO Library	Samples along lake shore, outside of cover. Biolassays only, no chemistry performed. Sediments sampled for texture. References 1972 dredging by City of Renton. References 3,000 cyd/yr sedimentation.
			Apr 21, 1994	Lloyd & Assoc.	Barbee Mills	DNR Files	Summarizes analytical & physical data available from 1991 through 1994 from dredge work & Ecology oversight.
			p. 21, 1774	22)4 6 7 230	Date Made	DAIN THES	Duminatizes analytical of physical data available from 1771 (model 1774 from though 1774 fr
	DNR/	Army Corps					
Q, X, B	1.	CH2M Hill 1981 estimation of DNR Lease Rates	Oct 6, 1981	СН2М Нії	Port Quendall	Hart Crowser	Estimates lease rates based on 1981 DNR revaluation: \$900K per year for boats, etc.
	2.	Former leases with Port of Seattle	1980 to 1984	Quendall, Port	Quendall, Port	DNR Files	Includes 4 - year lease from 1980 to 1984.
Q I	3,	Current DNR Lease & Related Documentation	Oct 1984	Baxter, DNR	Baxter, DNR	DNR Files	Lease term 10/84 to 10/96. Former leases were with Port of Seattle.
Q Q	4.	Insurance Policies related to DNR Lease	1984 to 1995	Hartford, others	Baxter	DNR Files	Policies as required by terms of DNR Lease.
Q [5.	Ecology & DNR Correspondence re: sediment cleanup	9/91 to 10/91	Ecology, DNR	Ecology, DNR	Ecology	DNR desires to awoid PLP status. Desires memo of understanding with Ecology. Discusses using new lease to force cleanup.
Q (DNR Lease Resvaluation Correspondence	1985 to 1992	Quendall, DNR	Quendall, DNR	DNR Files	Lease rate increases per lease terms.
Q, X, B		•	Jun 28, 1995	Hart Crowser	Quendall	Han Crowser	Notes from phone call to Army Corps. Detailed list of Lake elevation management by Army Corps.
x	8.	Former leases with Port of Seattle	1955 to 1983	Baxter, Port	Baxter, Port	DNR Files	First 30-yr lease 1954-1984. Also sublease to Foss Launch & Tug.
x (9.	Current DNR Leases	7/84 to 1/85	DNR	DNR	DNR Files	Lease term 10/84 to 10/96 for "log storage"
x	10.	Insurance Policies related to DNR Lease	1983 to 1995	Hantford, others	Baxter	DNR Files	Policies as required by terms of DNR Lease. None from Port of Seattle era.
X B		Baxter Lease rate reevaluations	9/89 to 8/92	DNR	DNR	DNR Files	Lease rate adjustments due to increase in "log storage" DNR rates.
в			Mar 26, 1975	Tweiker	Port Quendali	Hart Crowser	References increased sediment deposition, 1972 flood & Renton dredging. Requests permits for dredging.
		Current DNR Lease and Supporting Documents	12/83 to 2/86	DNR, Port of Seattle	DNR, Barbee	DNR Files	Lease from 1983 to 2003. Prior lease was with Port of Seattle under old state law.
в [Insurance Policies related to DNR Lease	9/84 to 10/95	Hantford, others	Barbee Mills	DNR Files	Policies as required by terms of DNR Lease. None from Port of Seattle era.
в		DNR Lease Rate Negotiations & Correspondence	10/90 to 10/93	DNR, Barbee	DNR, Barbee	DNR Files	Conflict re: differences between "log booming" and "log storage". Big price difference to Barbee.
		1990 Dredging Permit (with Analytical Data)	6/89 to 4/90	Corps, Barbee	Corps, Barbee	DNR Files	Permit for dredging and upland stockpiling of sediments from May Creek. Analytical to support permit.
			3/93-6/94	Seattle Times	Seattle Times	Renton Museum	After Cugini applied for dredge permit, Army Corps & city required Cugini to remove illegal fill. Favor shallow-water habitat.
		DNR Correspondence re: policy on wood waste/debris		DNR, Barbee	DNR, Barbee	DNR Files	References to DNR lease subsection 5.2(2) that "Lessee shall not allow debris or refuse to accumulate"
В	19.	1995 Barbee Dredging Permit	Nov. 1995	Army Corps & Barbee	Barbee Mills	Hart Crowser	Allows 2,200 cyd/yr for 5 years. Disposal on land at Barbee.
							

X: Baxter Property

B: Barbee Mills Property

P: Pan Abode Property

(Page 4 of 5)

Table 5-1.
Summary of Information Reviewed by RETEC (as of 7-3-96)
During Environmental Due Diligence for the Proposed JAG Redevelopment Project

	-					Diligence for the Proposed.	
Properties Included		Title	Date	Author	Sponsor	Document Obtained From	m Content Summary
	Noigh	hbors/General Public Opinion					
		Responsiveness summary for 1993 Agreed Order	Jan 1994	Ecology	Ecology	Hart Crowser	Includes letters from neighbors & other commentors for upland RIFS.
х		Ecology Notice of Pulic Comment for Baxter RI/FS	Oct. 1991	Ecology	Ecology	DNR Files	Standard public comment as required under Consent Decree rules. References RI, biotreatability and risk assessment.
	Uplar	nd Investigations					
o	-	Port Quendall Contamination Investigation	1983	Woodward Clyde	Port Quendali	Hart Crowser/Feology Lil	braSoil and GW investigation at Quendall. Appendices at Ecology include previous geotech, investigation data and background data.
la l		Early Bioassays of Soil Extracts	circa 1985	Not specified	Port Quendail	Hart Crowser	Fish tests using benzene extracts of upland soils.
		Results of 1st and 2nd Quarterly GW Sampling, Quend		Woodward Clyde	Jim Hanken	Han Crowser	DNAPL in three welk.
1 - 1		1989 through 1991 soil and GW analysis results, Quend	•	Woodward Clyde	Baxter		les Product in some wells. Soil data from borings. One well near PSP&L parcel.
		Results of Aquifer Testing, Quendali	Dec. 1991	Woodward Clyde	Baxter		les Slug tests and pumping tests in Quendall monitoring wells to define aquifer characteristics.
1 1		Copies of WCC Boring/Well/Test Pit Logs	Misc.	Woodward Clyde	Port Quendall	Hart Crowser	Typewritten & field logs collected for site.
H I		Quendail RI/FS Progress Reports	3/95 to 11/95	Hart Crowser	Baxter/Cugini	Ecology Files	Detail progress of RI/FS tasks.
		Hart Crowser Well Monitoring Logs	1995 – 1996	Han Crowser	Quendall	Han Crowser	Field notes from well monitoring. Includes narratives re: product, sheens & odors.
1 - 1		Hart Crowser Vapor Monitoring Logs	Aug 1995	Han Crowser	Quendali	Han Crowser	
		Copies of Han Crowser Boring/Well/Test Pit Logs	Misc.	Han Crowser	-		Location map, notes & PID readings. SUMMA data taken but not in file yet.
		Hart Crowser product thickness notes	Misc.	Hart Crowser	Quendall Terminals	Han Crowser	Typewritten & field logs collected for site.
					Quendall	Hart Crowser	Notes, tables & maps re: product thickness measurements.
-		Wood waste analytical data and volume est.	3/96 to 4/96	Han Crowser	Quendall	Hart Crowser	Volume estimates for piles. Analytical data for soil and bark separation.
		Hart Crowser GW modeling notes	1996	Hart Crowser	Quendall	Han Crowser	Conductivity data, modeling notes, draft flow net drawings.
		Boring Depth & Location Notes	Misc.	Misc.	Quendall	Misc.	Collection of location & depth summaries for wells, borings & test pits
		Compiled Analytical Data	Misc.	Misc.	Quendall	Misc.	Analytical data tables
x x		Review of Nearby Groundwater Wells	Misc.	Woodward Clyde	Baxter	Woodward Clyde	Well logs for wells in region.
X		ESE stormwater and pond sludge sampling	Feb 19, 1981	ESE	Baxter	Ecology Files	PAH (4-6 mg/L) & PCP (65 mg/L) measured in pond sludges. Stormwater from pond up to 1.2 mg/L.
	18.	Baxter Site Investigation	1983	Woodward Clyde	Baxter	Woodward Clyde	Soil Borings & Monitoring wells installed.
		Baxter site assessment & sampling for EPA	Aug 1986	Ecology & Environment, In	кEPA	Ecology Files	Extensive soil, GW, lagoon sediment & lake sediment testing. Some dioxin data. Free product in treatment area. PAH & PCP everywhe
	20.	Results from Field Sampling in Nov 1986	Nov 9, 1986	Woodward Clyde	Baxter	Woodward Clyde	Review of previous studies. Then PAH, PCP and dioxin testing by WCC in 1986.
	21.	Ecology asbestos & sludge sampling data	March 1987	Ecology	Ecology	Ecology Files	Data documents samples collected during "emergency removal" of asbestos & sludges March, 1987.
x	22.	Jan 1989 WCC Progress Report	Jan 1989	Woodward Clyde	Baxter	Woodward Clyde	Describes groundwater monitoring & prelim, conclusions about site geology/hydrogeoloty.
x	23.	Product Measurements at Baxter	2/89 to 4/89	Woodward Clyde	Baxter	Woodward Clyde	No product detected in Baxter wells these sampling dates.
	24.	Slug Test Data for Baxter Wells	Aug. 1989	Woodward Clyde	Baxter	Hart Crowser	Sjug test data for Baxter, also some Quendall wells.
		Tech. Memo No. 2 Baxter pond sampling	1989	Woodward Clyde	Baxter	Ecology Files	PAH & PCP detected in stormwater "la goon"
		Tech. Memo No. 3 Butt tank excavation	Oct 27, 1989	Woodward Clyde	Baxter	Woodward Clyde	Trenching and sampling around butt tanks only.
		Tech. Memo No. 4BAX-1 Well Decontamination		Woodward Clyde	Baxter	Woodward Clyde	Alcanox scrubbing of well which formerly had floating product. Ecology granted approval.
			Nov 22, 1989	Woodward Clyde	Baxter	Woodward Clyde	PAH in most wells at low ppb concentrations. Some PAH in wells 5 and 10.
		Baxter Well/Boring/Pit Logs	Misc.	Woodward Clyde	Baxter	Misc., WCC	Collected well & boring logs
		Field Notes from 1990 Trenching Investigations	5/90 to 6/90	Woodward Clyde	Baxter	Woodward Clyde	Notes confirm contamination near large retort, tank farm & drip tracks.
		Results of 1990 Trenching Investigations	July 1990	Woodward Clyde	Baxter	Woodward Clyde	Report and Ecology comments on trenching work.
		Endangered Plant & Animal Search	Nov. 1990	Woodward Clyde		Woodward Clyde	Literature and field surveys of plants & animals. No endangered flora/fauna identified.
		1990 Remedial Investigation Report	Dec. 1990	•	Baxter	•	Estimates 20,000 cyd impacted soils (butt, pond, tank farm). Sediment volumes not estimated.
				Woodward Clyde	Baxter	Woodward Clyde	
		WCC Progress Reports (1990–1991)	1990-91	Woodward Clyde	Baxter	Woodward Clyde	RI Report & limited risk assessment tasks.
i -		Tech. Memo No 6——Limited free product invest.	Mar 15, 1993	Woodward Clyde	Baxter	Woodward Clyde	Product in BAX-14 well. New borings placed to search for more NAPL. No new borings near BAX-1.
		Compiled WCC Analytical Data	Misc.	Woodward Clyde	Baxter	Woodward Clyde	Tables and figures w/summary data.
r	37.	Phase 1 Assessment of Pan Abode Property	Feb 8, 1996	Geo Group NW	ESA Development	Pan Abode	Summarizes previous activities and investigations, also property history.

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(Page 5 of 5)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY **REGION 10**

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